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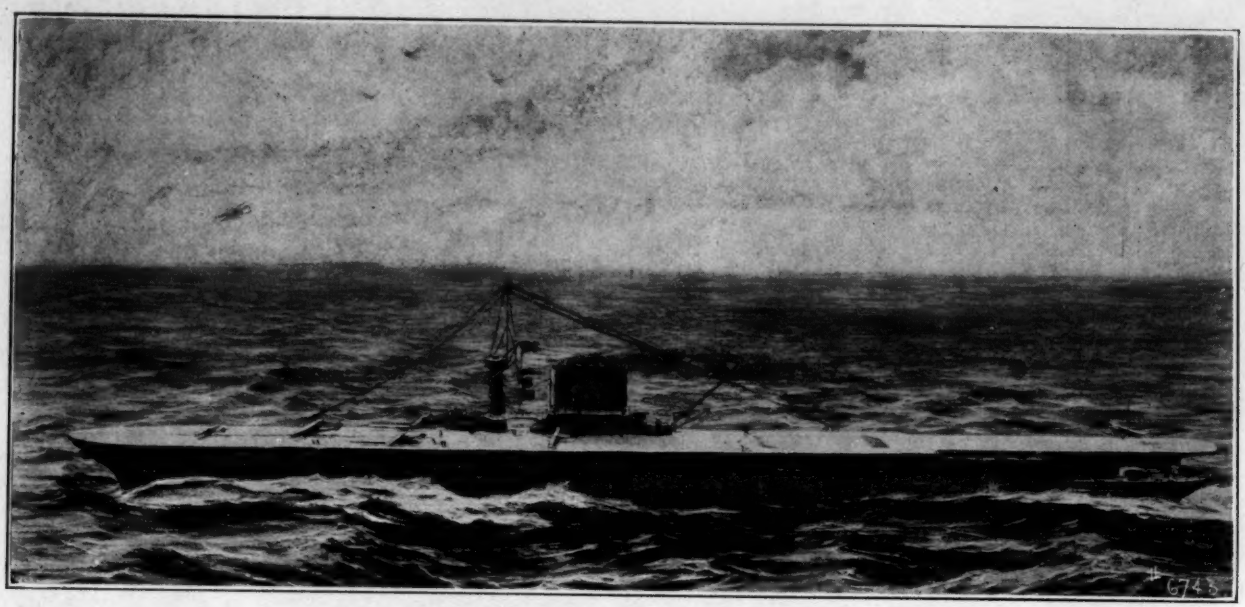

U. S. S. "LEXINGTON" AND "SARATOGA"
Proposed Airplane Carriers

UNITED STATES NAVAL INSTITUTE PROCEEDINGS

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U. S. NAVAL INSTITUTE, ANNAPOLIS, MD.

SOME CONSIDERATIONS AFFECTING NAVAL POLITY

By Rear Admiral W. V. Pratt, U. S. Navy

"It is important to have our navy of adequate size, but it is even more important that ship for ship it should equal in efficiency any navy in the world."—Roosevelt.

It is not the writer's aim to discuss naval policy in its relation to national policies. It is, however, the purpose to show how certain considerations external to the navy and certain factors within the navy do affect naval polity.

Truth is invariable and everlasting. It is present always, but as an abstract concept it is sometimes difficult to encompass and often hard to envisage so that the living truth stands out distinct from its shadow. To apply it, so that the lessons dependent upon it are correctly interpreted and stand the test of time, is a perplexing task. Though truth itself is invariable, when we attempt to deduce naval truths from actual experience, or from a study of history, we enter upon that first twilight zone where paths are many and their directions divergent. But it is in the next step, through the endeavor to apply naval truths to the solution of some concrete problem that we are most apt to stray from the right road.

Nowhere is the danger graver than in the practical application to present needs, of the lessons learned from some late cataclysmic war. The psychic influences induced by such abnormal conditions

will of themselves weave a false mantle composed of fear, distrust and other elemental but harmful forces behind which truth is hidden. Where accurate records are available, time is the most potent factor in separating the true from the false.

Thoughtful naval men realize this condition, yet also they realize the necessity of gleaning the harvest of experience while still it stands ripe in the field. Fortunately there is given to us the orderly method of thought and its concrete expression embodied in the reasoned estimate of the situation and the concise decision. These latter are the tools of his craft—to be used by the expert workman in gleaning the truths of which the late war and history are so replete. Had our military leaders in France accepted at their face value, the then apparent lessons of the war, and been guided solely by the graver counsels of foreign war experienced veterans, they might have been so thoroughly imbued with the principle of immobility that a truer perspective of conditions would have been impossible. Who can say now what form the Argonne campaign would have taken even had it eventualized; yet it was the crowning stroke of the war.

As a word of warning, let it be said; at no time has there been a greater need than exists today, for farsighted naval statesmanship, and for true interpretations, not only of the lessons of the late war, but also of the trend of the times. Rightly or wrongly the mass of the American people look upon naval men as tinged with militarism. As a tradition this commonplace is accepted without much thought. If called upon to define the feeling, it would mean, probably, looking at the same subject from a different point of view. But even among more intelligent men, the criticism sometimes arises that naval men lack breadth of view, induced by their training, education and the life they lead. Whether this opinion be true or not is hardly to the point. That it exists is everything. Nothing tends more to accentuate this feeling than the constant presentation of broader naval problems, from a purely military point of view. What bearing does this have to naval polity: much, though its influence be subtle. It aids to make the average citizen look upon us as a class apart, not appreciating the fact that first we are citizens of the United States, and in the second instance, naval men. It, together with other influences, affects our relations with Congress. Foremost naval men must not be technicians alone (though in that they must excel), or else

they fail to live up to the examples and standards set by many of their predecessors. Public opinion has a distinct bearing on naval polity and is a factor of growing importance.

There are other considerations external to the navy to which thought might be given. It seems a far cry from the form of government we live under to matters affecting naval polity. Yet the distance is not so great as it appears. Strictly speaking, our government is neither democratic nor republican. More truly it is a constitutional government first and always, and a constitutional government administered by a free people functions best when its several parts co-operate thoroughly and loyally. Therefore any scheme of reorganization within departments, or interdepartmental, cannot with soundness, base its conclusions upon systems found efficient in less liberal and more autocratic countries. Autocratic, one-man control violates the American conception of the best form of administration. Respect for the basic law and a hearty co-operation in its support, are innate traits of American character, even during periods when acts seem to belie this statement. No organization, however specious the arguments in its support may be, that violate these requirements, will ultimately endure. Each new scheme should be closely inspected to see if it can stand searching analysis and is basically sound.

During the last war the feature causing most amazement to foreigners little acquainted with the inner workings of our apparently loose-jointed country, was the absolute co-ordination and co-operation of all its several parts, so that ultimately it became a well-oiled machine working for a purpose, and operating more efficiently than the German war machine ever worked; for, whereas the German war machine was perfect in details, it failed in its greater conceptions.

After each war, military and naval writers have spent reams of paper in explanation of the state of our unpreparedness on entering the struggle. Congress has held investigations in an endeavor to place blame where it belongs. Warnings are sounded; recriminations pass and repass; meanwhile, geography hides its head in its sleeve and laughs. Were we less fortunately situated with reference to other possible antagonists, the story would be different. We might be over-prepared, as is perhaps the case today with some other countries.

The character of a people has a determining influence upon

naval polity indirectly affecting the structure, composition, development and operation of the naval establishment. Keynotes struck in our international relationships, are altruism and idealism. Whether other nationals are so convinced, the American people themselves are thoroughly satisfied that this is true. There is ground for this belief. In the three hundred odd years of our existence, though wave after wave of foreign immigration has swept over us; though radical propagandists encounter less active opposition to the dissemination of their doctrines in this country than elsewhere, they have not been able to overcome the subtle but potent influence of the ideals which, first brought over with us, are maturing in a favoring soil and stamp the American people for what they are. Rather may it be said that the old American spirit prevails, if not in one generation, then in the following. Could any more convincing proofs of practical idealism and altruism be asked than were shown by our men and women during the late war?

Of all naval problems at that time, none had to be given more thought than the trend of public opinion. Naval operations by or against the Germans were, for much of the time, of relatively less importance than German propaganda. The united spirit of our people did much to kill schemes carefully prepared by cunning plotters, and lent itself to intelligent direction when necessary.

The temper of a people as manifested in public opinion may not be disregarded. What naval man viewing his problem from the military point of view only, could agree to the supreme sacrifice of naval strength which America made at the Washington Conference. Every historical fact told him he was correct in his conclusions that sea power, if it is to be enduring, must be backed by naval strength. Yet there are influences stronger than the conclusions drawn from historical and from mathematical deductions, and these influences may not be gainsaid. Who can tell that they may not portend a broader vision, more in keeping with the spirit of the times, than deduction drawn from the history of the seventeenth and eighteenth centuries? This may or may not be true. It must, however, be given due weight in the solution of great national problems.

International relationships have their bearing on naval polity. The true naval statesman, in peace, thinks less of what he will do in war, than of the part the navy should play to keep our country

out of war. It is a trite saying that sincere international friendships cannot exist. If, however, honor, respect for law and justice, sympathy for the under-dog, uprightness, fair dealing, are necessary components of stable friendships, then there is a future hope that the term international friendship may come into being. Much as the writer dislikes being in disagreement with some able writers on naval subjects, he cannot entirely follow their reasoning relative to Article XIX of the Treaty for a Limititation of Naval Armaments, nor accept as altogether sound their opinions of the status quo clause. They attempt to visualize conditions as they fancy they should be in the future, and from those premises draw certain conclusions. They do not accept conditions as they really are. The writer, from a natural naval viewpoint, appreciates the importance of naval bases strategically located. On the other hand, the naval point of view, or in other words the strictly technical viewpoint, never has, and never will be accepted in its entirety by the American people. In times of trouble, yes, perhaps; but in peace, no; and there is much practical sense in this attitude of mind. Therefore Guam and the Philippines never were, and never would be adequately fortified by us, in peace, as they might be by a more military government. These far flung, outlying positions, while not powerful enough to speak with armed authority, were nevertheless, a thorn in the side of Japan, continually aggravating the tension already existing due to competitive building and to misunderstandings as to national aims and aspirations. Statesmen have spoken, and their judgments are wiser than purely naval decisions, for they are based on a just and discerning estimate of all conditions.

Perhaps nothing is needed so much today in fostering good relations, as the friendly intermingling of nations. The man on the spot can frequently accomplish things which letters will not accomplish. There is something warm and personal in the friendly visit, contrasted to the colder and more formal diplomatic correspondence. It is a pertinent part of naval policy, wherever possible, to see that through naval contact any good understandings now enjoyed be maintained, and that any misunderstandings be adjusted. For those desirous of maintaining the peace, such would seem to be a correct line of conduct to follow.

National wealth, domestic conditions, foreign trade and many

other factors have their relation to, or effect upon, naval polity, and must be considered in any accurate solution of our problems. The sea trader is the pioneer, more than is the naval man, but as our sea trade increases in importance, so may the need for its support. From the time of the Phoenicians, the great Maritime traders, down to the present, water-borne commerce has represented or influenced sea power. Frequently the edicts of sound naval strategy have been violated, as was the case during the Napoleonic wars, when with no supporting fleet, our merchant marine carried the commerce of England and France in its bottoms, only however, because interests more potent were struggling against each other. It is often the external condition, not the technical military estimate, which governs, but these external controlling conditions are just as vital, just as true gauges to watch, as the purely naval factors. Perhaps a just appreciation of these things and of other vital essentials to the world life of nations may help us to make more reasonable estimates of international relationships, than the acceptance at face value as principles to guide us, of such trite, short, but somewhat commonplace expressions as militaristic country, traditional enemy, and other equally delusive statements, which are accurate only as they preserve their true balance in relation to other things.

On the other hand how many naval men, and especially how many outside the service, have given thought to the place the navy holds in the development of the industries and trade of our country. A study of this phase of naval activity would reveal much which is now unknown or not even dreamed of.

Again, economy does not and cannot mean to the government official exactly what it does to the business man. To live in business there must be profit, and where there is competition, economy must always be a very determining, if not the most important factor. The naval man, trained to look at his problems with an eye to accomplishing results first regardless of cost, places efficiency before economy. With us economy is weighed, sometimes in the same balance with efficiency, sometimes in the opposite. To both classes of men, naval expenditure represents overhead insurance, but the attitude toward it varies with the point of view. Both are equally patriotic citizens and their differences are capable of adjustment. The introduction of the budget system is practically certain to bring the business point of view more

to the fore in the handling of naval financial matters, with a consequent effect upon the entire naval establishment.

You may well ask, what is the purpose of the above statements—surely it is not to preach unpreparedness. No, it is not that. Listen to what one of the best friends the navy ever had, one of the foremost statesmen of his time, our great President Roosevelt, has to say, "The American people must either build and maintain an adequate navy or else make up their minds definitely to accept a secondary position in international affairs, not merely in political, but in commercial matters. It has been well said that there is no surer way of courting national disaster than to be opulent, aggressive and unarmed." This principle is sound and true.

But the time has arrived when it seems necessary to analyze certain external fundamental conditions in their relation to our navy, and to show how powerful these external influences may be. What is the corrective, if corrective be needed? It appears as simple as the answer given by the delegates at the Washington Conference. Arrive at better understandings with your world-over neighbors and see to it that the good relationships established are kept alive. Education of the public to know what its navy means to it, and tactful appreciation on our own part of the public point of view, will do much to establish, in our own country, correct and mutual understanding.

Were you to ask me, what is the most puissant external material factor, that has in the past and will in the future influence naval polity, I think the reply would be geography. Can any student deny that the heart of our naval policy is intimately interwoven with the correct interpretation of the strategy of the Panama Canal? Does anyone fail to see the close relationship of the submarine problem to geography? Whether it be in the air, on the waters, or under them, we eventually return to geography, to our singularly fortunate position so favorably fixed geographically in relation to other nations. It is needless to go into details. The thoughtful man may read and draw his own correct conclusions.

Hand in hand with an appreciation of our own world position, our affluence, capabilities, and limitations, must go knowledge and recognition of the position which other countries occupy in relation to ourselves and to one another. Their aims, aspirations,

and the vital necessities essential to a sane and normal national life must be comprehended, if we would maintain that position of leadership, not sought but which a growing and war sick world has thrust upon us. By treading the straight path of national uprightness and fair dealing, never swerving aside to secure a minor victory when the greater goal lies ahead, impelled by sympathy towards all and actuated by malice and suspicion towards none, our country will move on to the accomplishment of its ordained purpose. As servants of our country, naval men must take these lessons to heart, if they would serve best. Let it be said here, that whenever naval men have been entrusted with the conduct of international matters, almost invariably they have, due possibly to training and to a fair knowledge of world affairs, executed their missions satisfactorily, as recorded testimonials will bear witness.

Powerful as is the influence of external factors upon naval polity, and interesting as may be their study, yet the seagoing officer is much more concerned in the internal relations of the various parts of the naval establishment to each other, in their proper organization and efficient administration. Particularly is his attention centered in the sound administration and operation of the fleet, for in it he sees the hammer with which, in time of war, he may drive through all obstacles to secure for his country the purpose for which the fleet exists. No officer, the major part of whose life is spent at sea or in dealing with matters pertaining to the sea, can help being vitally concerned in the efficiency of the fleet. To command the fleet is the summit of his naval career.

In general, naval policy may be defined as the system of principles and the general terms of their application, governing the development, organization, maintenance and operation of the navy. It is based on and designed to support national policies and American interests. It comprehends the questions of number, type, and distribution of naval vessels and stations, the character and number of the personnel, and the character of peace and war operations. This precept guides our administrative acts.

During peace the normal tendency for the component parts of a naval establishment is to adjust themselves along sane and harmonious lines, keeping step with the progress of the times. Like seeks like, and progress and development in type move hand in hand, provided that initiative be not stifled, imagination is given

free rein, and slothfulness and sluggishness do not permeate the naval body. Given sufficient foresight in our leaders and ample time for preparation and training, an organization along these lines should be able to adjust itself to the more special and intensive tasks demanded of it in war. Such has been the method of our naval development in the past.

After every great war there is the very natural tendency to assume that other wars will follow the course of the last. While in major premises this is reasonably true (such as predicating economic war), methods and details to carry it out will change. An impulse, therefore, is given to our naval establishment to make it conform to and adopt the practices of the last war. This impulse followed to extremes, would impose upon us the methods of the last war rather to the neglect of a study of principles, some of which may have been handed down to us from history as effective through long periods in the past. This inclination to adopt methods in lieu of analyzing principles is a danger which should be carefully guarded against, for it may lead to false conclusions and it is apt to crystallize our conceptions as to what warfare in the future will be. The methods that served well three or four years ago, if adopted even ten or fifteen years hence may be antiquated and out of date, however true the fundamental principles upon which they are based. It is to guard against the fallacious idea of adopting past practices as a substitute for the study of principles, that this note of warning is sounded.

There are certain basic laws upon which the naval establishment should be organized, administered and operated. No violation of these laws will stand the test of time, regardless of how specious may be the arguments presented in favor of any particular method of application. During the progress of war there is usually an inclination to centralize, and to vest supreme control in the persons of few individuals. If allowed to run its natural gait, this tendency will in war adjust itself to the needs of the time. But if, in time of peace, we assume that the conditions imposed by war are the natural and normal conditions upon which to base our permanent organization, we err greatly in principle. The very foundations upon which our governmental structure rests, demand of our central organizations the ability to co-operate to the utmost, rather than to direct to the maximum. Our personnel also lends itself best to a form of control by induc-

tion, in contra-distinction to one by direction. The system of departmental organization, much as it has been attacked, especially since the late war, is sound in principle and conforms to the same basic laws that tie our federation of states into such an harmonious whole. The co-operation of the various integral parts of our central naval establishment is soundly arranged for through the agency of a co-operating and administering military head. The advisory and plan-making bodies co-ordinate their activities directly through this head with the civilian head. No military head can assume the duties of the civilian head of our naval establishment without violating some of the principles upon which our government is based, for it is not within his power to co-operate as fully with the legislative bodies as can the civilian head appointed for this purpose. The amount of influence and direction which the military head exercises, depends entirely upon the conditions which confront our country at the time. If it be peace, the function of a military head is largely advisory, and in a broad sense inspectional; in a more minor sense it is directional. In time of war the directional function increases in importance and that of inspection is relegated to a minor place. The advisory function maintains its same relative position, but the character and importance of subjects handled change.

In certain countries there has arisen the apparent need for a department of national defense which combines under one head all military, naval and allied civil activities. Impelled by some specific and local urge, nations which have in the past lent themselves to alliances of alien interests, are more free to adopt such a system than is a country like our own with a looser form of government, thoroughly disliking any form of alliance of different interests, or even a too intimate association of similar interests if it be built up to constitute a super body. In the organization spoken of above, it is easy to trace certain psychological effects produced by the late war. The word defense is itself an expression of the fear which actuated these countries when they formed this body organic to protect themselves. It has been adopted by some countries where the time element is of greater importance than it is to us who are allowed more latitude in this respect. It is the attempt to combine under one superhead various separate activities, each having a life, a purpose and a function of operation individual and distinct from the activities of the other organi-

zations with which it would ally itself. The result is to create a superhead whose functions in war would infringe upon those of the constitutionally appointed commander-in-chief, in whose person is now vested the general direction of all war activities.

Another effort which will bear close analysis, is the attempt to organize all air activities, naval, military and civil, under one independent head with the objective of obtaining complete air control, and through that control effecting complete war control, and ultimately victory. The one nation which has accepted this organization is England, and apparently she purposes to accomplish by organization some of the things which France, just across the channel, imagines she can do through the agency of adequate mobilization. It is not the writer's intention to contrast the conceptions of other nations in these matters, except as they affect America's interests. It might be pertinent, however, to point out that French military strategy and tactics, in the main, have been unusually sound; while England's naval strategy and tactics have been equally so. In view of the almost universal soundness of England's sea policy, the separation of her naval air force from her navy is not entirely clear. It might, perhaps, aid us to quote certain succinct paragraphs taken from the Geddes report, on the question of a separate air force.

> The air force was essentially a war creation, and owed its separate existence mainly to the necessity for preventing competition between the navy and the army for men and material in aerial warfare. It was also felt at that time that a definite function of independent air attack was called for, but would not be realized unless the air arm was freed from naval and military control. No other nation, however, has as yet followed the example of this country in establishing such a separate force. . . . We appreciate that it is only on financial grounds that our terms or reference would entitle us to express opinions on the question of a separate air force.

England's problem is evidently not our problem. No independent air effort will ever be initiated by us, which first must not be supported by sea force, and second, by land force. For a period of time man, like the bird, may fly in the air, and, like the fish, live under the seas; but eventually, he comes to stable rest on the surface of the earth; and fighting force must ultimately express itself in factors composed of military power on land and naval power on the sea. To learn their sea problems,

there must be a naval air force, animated by the same purpose that directs the grand sea campaign. There is undoubted need for the development of civil air activities, but the relationship between the civil air force and the naval air force is about the same as that existing between the navy and the merchant marine. Of the three forms of control, air, surface, and underseas, there is but one form, surface, which contains within itself that complete cycle of basic war functions, which, if exercised independent of the other two forms of control (in the sense of their being non-existent), contains all essential strategic and tactical qualities which will eventually encompass all war problems necessary to bring the grand campaign and eventually the war to a successful conclusion. Due to certain natural qualities inherent to the mediums in which they work, and influenced also by the physical locations of the objectives for which they must strive, both the underseas forces and the air forces lack certain basic war assets without which a complete and independent cycle of war functions cannot be maintained. The submarine lacks the necessary flexibility, without which it cannot independently effect complete defeat of its own kind, nor impose its full will on other fighting types. The aircraft lacks complete tactical endurance, which defect renders it incapable of performing those patient and continuous war operations as successfully as other war types whose expenditure of war energy is so much less. On account of the extreme mobility possessed by this type, it cannot hope to contain the enemy to the same extent that other war types may, nor is it able to retain war gains to the utmost limit, as may infantry forces. Therefore, independently and of themselves, the air and underseas forces cannot with full efficiency wage complete war, but must ultimately be supported by and be supplementary to the surface forces whose objectives and war functions will in the end dominate.

Shore establishments in the shape of navy yards, training stations, naval bases and educational institutions, came into being through the process of evolution and to serve certain conditions existing at the time when they were born. Their main military purpose is to serve the fleet. When international conditions change, adjustments of our shore establishments will have to be made. The position of the United States fronting two great oceans, one replete with a historical war past, the other full of

future possibilities, is unique and peculiar. A happy balance must be struck between those establishments serving the fleet in one ocean and those necessary to the life of the fleet in the other. But no matter what the present strategic demands may be, it must be borne in mind that a fleet cannot exist if those forces on shore which give it life, sustenance and rest, are destroyed. And it must further be remembered that while naval strategy has a tendency to look ahead to the future, it must not entirely forget the past. Neither must it neglect to note that shore facilities built up with much care and thought, through a long space of time, and activities carried on by a competent personnel, cannot entirely be disrupted without gravely affecting in some manner the efficiency of the fleet. No naval man should look too far in the future and make decisions based upon premises which may not exist fifty years from now. Therefore, while reductions are always proper, total abolition of existing facilities, in the long run, may be unwise. Adjustment is the far safer and saner course to adopt; a wise adjustment tempered by economy. Nor should we, in preparing for the future, be governed by a too great local and present urge. Rather should the whole situation receive calm and grave consideration.

Coming then to the fleet, and considering the purpose for which it exists, and the methods whereby it lives and perfects itself as a war organization, we arrive at that part of our naval establishment which always must give the maximum amount of concern. By the fleet, in this particular instance, is meant all of those forces afloat necessary for the successful conduct of a sea campaign. In its broadest aspect we may say the fleet is composed of two parts. The first and most important part comprises the fighting forces, those which through operations against the enemy, accomplish certain definitely desired results. Broadly speaking, these results may be the destruction of the fighting sea forces of the enemy, containing the fighting sea forces of the enemy, and operations directed against the enemy's economic life. To effect any of the three purposes indicated above, much detailed work must be performed. Parts or all of the fighting forces will be occupied in the performance of tasks already indicated through past experience, or in undertaking new tasks. This general line of conduct will govern the activities of the fighting forces during the entire campaign. Time is an exceedingly important element

for the fighting forces of the fleet to reckon with. Ability to pass quickly from one set task to another without too great disruption of the major purposes of the campaign must always be had. Imagination which looks ahead, visualizing the intentions of the enemy even before they are indicated, must always stand at the right hand of the commander-in-chief as his guide. The purpose which he has in his mind, carried as far into the future as it is wise to predicate, must animate the actions of all subordinates, though indeed, if they fully comprehend his purpose much individual initiative may be theirs. In times where quick action is needed, it is not always possible to issue that series of detailed instructions which will enable one to cope with an immediate task, and then to press on to tasks following close on the heels of the first. Not only should the commander-in-chief be able to make immediate and accurate decisions, but above all, his purpose must be sound and thoroughly understood by every subordinate in order that the fewest orders, simply expressed, may flow between them. Likewise his purpose and immediate decisions should be altered as seldom as sound strategic conception and good fleet management will permit. This is accomplished only through a thorough indoctrination of all the forces under his command. Indoctrination itself will not be complete unless it is based on a sound groundwork of study and preparation, and much actual work in the way of theoretical and practical sea maneuver is given.

Visualizing naval matters from the broadest viewpoint, the second great part of the fleet will be composed of those auxiliary forces or of our advanced bases whose purpose it is to sustain or support the fleet. The activities of these auxiliaries, while perhaps not so spectacular as those of the fighting force, are more continuous and at certain stages of a campaign may become even of relatively greater importance; as, for example, if the character of the campaign changes from one purely naval to one also involving military activities. Then, operations ceasing to become purely naval in character and combining with military activities, the importance of the auxiliary fleet may be supreme. So great may become the import of these allied operations, that great pressure may be brought to bear on the fighting sea force, even to an extent tending to divert it from its main and logical mission. One consideration which must always be given the activities of the auxiliary fleet is the fact that its operations, when begun,

should be continuous. In general, the operations of the fighting fleet, to be effective, must be timely and conducted with a maximum degree of concentration. The activities of the auxiliary fleet are apt to be more continuous than timely, and are more often scattered than they are concentrated.

Out of the efforts which the attacking fleet and the auxiliary fleet must make, there comes into being another set of operations which should be taken into the reckoning. As a fleet advances and occupies positions given up by the enemy, these posts must be held and maintained for our own purposes. The supplies necessary for the upkeep of the fleet or its personnel, the ships carrying troops (if a long campaign be contemplated) and the supplies necessary for their sustenance must flow continuously onward. These operations call into existence a third class of war activities which falls into the zone lying somewhere between the operations of the fighting fleet and the operations of the auxiliary forces. Speaking in broad terms, the operations of this third force (which for purposes of organization we may call a control force) are in character more defensive than offensive. In the course of a long war its operations will tend more to co-operate activities with the auxiliary forces than with the fighting fleet. Here again, however, this statement must be tempered by the thoughtful use of geography. As we advance further toward the enemy's country the purposes of the control force blend more with the purposes of the fighting force. In one respect, however, operations of the control force vary from those of both the fighting fleet and the auxiliary forces. While the operations of the fighting fleet may be specially characterized as timely and those of the auxiliary forces as continuous, the operations of the control force, while undoubtedly they will be continuous throughout a war, on occasions may need be very timely. However, in general, as we review the major character of the operations which a sea campaign will engender, we see at a broad glance that all these sea activities may be classed as specific war tasks, whether they be conducted by the fighting fleet, the control force, or the auxiliary forces. Some of them are so common to all wars that we may predict their continuance in the future. Some of them are so evanescent in character that their purpose may have ceased with the late war. Others yet may not be born. The matter which concerns us is how may we lay our plans so

that, if the need arises, we may use all of our sea forces in the way which will produce the most efficient results. Looking then at the complete cycle, it seems fair to the writer to assume that the *training* of the fleet to accomplish efficiently those tasks which it *might* be called upon to undertake in war, and the performance of those duties which it *must* undertake in peace, are the prime missions on which the organization, distribution, and operation of the fleet must be based.

As has been stated before, there appears to be a natural tendency to adopt methods, as easier and perhaps safer than analyzing principles. If we stick too closely to past methods we lose the art of reconstruction. If, for all classes of fleet forces we adopt as basic, organization on the task group principle, and predicate for the future those tasks found essential in the past, we assume that, regardless of changed conditions, regardless of the number of years we may be at peace, regardless of external conditions which may be imposed upon us, the next war will run the course of the last. This assumption renders us liable to commit grave errors. As said before, those operations and methods which will be continuous, which history has shown will be repeated century after century, it may be safe to predicate a long time in advance. For this reason the auxiliary forces may be organized on the task group principle; though here again task is by type. But in the sphere where operations must be timely, where the engines and inventions of war change rapidly, where the imagination should work freely, where ideas and methods take on a new and increasing importance, it is an unsafe practice to tie up organization too closely with the past in the endeavor to make it take the place of adequate mobilization and timely distribution. But this is exactly what any organization of a fighting fleet on the task assignment principle does. You have but to turn to one of the commonest examples in ordinary life to realize what is meant. In a normal life, girls flock with girls, children with children, and young men with young men. During the formative, educational and training portions of their life they, for the most part, grow and develop by types. Later, for the accomplishment of certain set tasks they may group themselves into social organizations. It is believed that it is a more normal, flexible, and progressive way to organize by types and to train these types to perform all tasks which may fall to their lot, than it is permanently to organize

during the training period on the principle of intermingling types to perform certain war tasks which may or may not eventualize. It is wrong to charge organization with an overload which should be carried by other agencies. The battleship has a mission of its own to perform, built into it in the very nature of things, stern and inexorable as fate. That mission it must perform, shoulder to shoulder with other battleships, though in the course of events it may perform other tasks. Its main mission, however, is fixed for it, and it is unsafe to disregard it and to make it secondary to other tasks, the methods of whose accomplishment change with time and type. The doctrine of the destroyer is not the doctrine of the battleship. The doctrine of aircraft is not the doctrine of the destroyer or of the battleship. The doctrine of the cruiser may in details differ from all. Nevertheless, all types may be combined to perform set tasks as occasion demands, and during joint maneuvers the points where the various doctrines intermingle will become established. Basing organization on the task group principle hampers the free inception and flow of doctrine, and it has a further tendency to crystallize the organization into the task form or the task group laid down for it. There is one very vital war fundamental which the segregation into task groups tends to violate, namely, the principle of concentration of force. Where types develop their own doctrine, each emulating the other to see as far into the future as possible in order to make themselves proficient in any or all tasks which may be assigned them, a quite different principle is involved from the one where a set task is assigned to a certain group and that group is organized to perform that task as its permanent mission. Though under the task group organization there still exists need for the various groups to come together, co-operating thoroughly in strategic and tactical problems, a tendency is bound to be created for each task group to believe that it can accomplish its own appointed work by itself. Each new problem also will require a new task assignment if it covers original ground. In indoctrination by type, however, there is always the realizing sense that the major problems of strategy and tactics can never be accomplished unless all parts of the fleet are constantly in touch with each other and sharing each other's views and life through physical contact.

Perhaps the most subtle but demoralizing influence which the task group organization exercises is the undermining influence

which it exerts upon leadership, as expressed through and in the person of the commander-in-chief, by the handicap which it imposes upon the free development of doctrine. Through doctrine is imposed upon all forces the purpose and personality of the commander-in-chief. Through doctrine is effected the maximum concentration of purpose through the maximum decentralization of administration. Any weakening of this instrument is a weakening of the influence of the commander-in-chief, and consequently, a disorganization of the forces under his command.

It is not to be expected that many of the conclusions reached in this article will be agreed to. The conduct of naval affairs always will be influenced by temporary expediency. Yet expediency must be the exception, not the rule. Through the agency of the Washington Conference limits have been placed on naval armament. Though possessing the national wealth to do so, we may not spend as we will on naval construction. Congress also has set bounds to personnel and to expenditures. It therefore behooves naval men to take account of stock and to bend every energy to make our navy second to none.

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U. S. NAVAL INSTITUTE, ANNAPOLIS, MD.

THE U. S. NAVAL AIR FORCE IN ACTION 1917-18

By Lieutenant Commander W. Atlee Edwards, U. S. Navy

Note:—The following communication has been received from the President of the Naval War College:—

This brief but comprehensive résumé of the activities of the U. S. Naval Air Force in action during the World War was prepared by Lieutenant Commander Edwards at my request, and has been incorporated in the Reading Course of the Naval War College. It is accurate as to details and covers the salient features of our activities in this field of endeavor in a very thorough manner.

As Aide for Aviation on my Staff during the World War, and Chief Liaison Officer to the British Air Ministry, Lieutenant Commander Edwards occupied a position which enabled him to study the Strategy and Tactics of the Air in its relation to naval operations to an extent which, in my opinion, qualifies him to write authoritatively on this subject.

Wm. S. Sims,
Rear Admiral, U. S. Navy.
Editor.

It is scarcely an exaggeration to say that less is known of the activities of the U. S. Naval Air Force in action than any phase of America's effort during the Great War. This is, doubtless, due to two reasons: first, the work was not spectacular and, secondly, the Armistice intervened before our air program had fully matured. Almost without exception accounts of air operations have been written for popular consumption and have, therefore, concerned themselves principally with the romance of the air; with the records and thrilling adventures of American Aces, ignoring for the most part the vast amount of preliminary work, the careful planning and the arduous training which made these aerial fighters and their heroic exploits possible.

The mission of this paper, as I conceive it, is to sketch briefly and in a more or less technical way the organization, administration, and operation of the U. S. Naval Air Force Foreign Ser-

vice during the Great War, and, by way of establishing my claim to write with some degree of authority on this subject, I beg leave to state that it was my very great good fortune to have served as Aide for Aviation on the staff of the commander of the U. S. Naval Forces operating in European waters from October, 1917, to April, 1919, with additional duties as liaison officer to the British Air Ministry.

Anticipating the inevitable question, "What did naval aviation do during the war?" I would submit the following by way of reply:

Officially the U. S. Naval Air Force Foreign Service executed thirty-nine attacks against enemy submarines, of which ten were considered to have been at least partially successful; it dropped 100 tons of high explosive on enemy objectives, and it had to its credit a total of 22,000 flights in the course of which it patrolled more than 800,000 nautical miles of submarine-infested areas. In point of fact it did immeasurably more than this, for these figures are very far from being a just or fair method of appraising the value of aircraft in naval warfare. I say this because almost always the damage inflicted by aircraft, when operating against surface craft, was of a contributory and indirect nature—"the seaplane summoned destroyers to the scene of action and the submarine was destroyed" describes what is meant by "indirect" in this sense. The destroyers almost always got the credit, whereas the aircraft, the indirect destructive agency, was really responsible for bringing about the action in which the submarine was destroyed. Again negative information is often as good as positive information—it is frequently just as important to know that the enemy is not there as it is to know that he is there—and so, too, a harmless submerged submarine was often just as good as a dead one. This was especially true in the case of convoy operations, with reference to which Admiral Jellicoe, writing to Admiral Sims under date of August 22, 1917, said in part:

> To date there has been no case of a vessel being attacked by an enemy submarine when aircraft has been present, while in several cases the submarines have been sighted and compelled to abandon their attacks.

It is not intended to convey the impression that aircraft were content with keeping the submarines under the water, but this was their secondary mission in order to divert them from their

work of destruction through fear of the consequences. Personally I hold strongly to the belief that during the war enemy submarines were much more afraid of aircraft than they were of destroyers, because of the greater range of vision of the former over the latter. Having spotted the submarine, it was then a simple procedure to summon such surface craft as might be in that area by means of radio or visual signals. Due to the shallow and discolored water of the North Sea and to a less extent the waters adjacent to the western coasts of England, Ireland, France, and Portugal, it was extremely difficult for aircraft to pick up submerged submarines, although there were several cases on record in which this was done to the ultimate destruction of the submarine. In certain localities, however, notably in the Caribbean Sea, the nature of the water and of the bottom are such that submerged submarines can be detected at great depths and from considerable distances.

In order then to form any just appraisal of the value of aircraft in naval warfare, one must take into account the "negative" results attained, of which a great many must, of necessity, have developed from the 800,000 miles of patrol duty which stand to the credit of our Naval Air Force during the war.

Having reviewed briefly the accomplishments of our Naval Air Force, it now seems logical to proceed with a description of how this force was assembled, organized and operated.

In common with all the nations involved in the Great War, save perhaps Germany, America was unprepared in aviation. There was some excuse for this in the case of Great Britain and of France, for aeronautics was hardly beyond its beginnings in 1914, but this offers no explanation of the lack of attention paid in America to air preparedness. Nor is it an excuse to say that we could not foresee our participation in the general world upheaval, for events proved that anything was possible, and a reasonable amount of foresight in preparation would have been of incalculable value during 1917. Indeed, it is more than strange that Americans should have noted the enormous expansion of aerial activities in Europe, and read the accounts of results obtained by the air squadrons both on land and sea, and yet remained so inert in demanding at least a nucleus of an air force.

Yet, such was the situation. An inventory of our effects in the spring of 1917, showed that we had practically nothing in the way of material and very little in personnel. In fact, prior

to 1916, no appropriations, save small ones for experimental purposes, had been made for aviation, the first appropriation of any consequence, $1,000,000, being made in 1916. Yet it must be admitted that we had something that was worth infinitely more than all we lacked—"the will to victory." And behind that lay American ingenuity and the vast resources of our great country. We knew that we could not lose in the long run, but the important question was, "Would our intervention be sufficiently prompt to insure success?"

That our outlook in aviation at the moment of our entry into the war was gloomy, to say the least, is obvious; we were not only unprepared but we had very little idea of how to prepare for aerial warfare, as is evidenced by the following cablegram from the Secretary of the Navy to Admiral Sims under date of April 20, 1917:

Immediate and full information is desired by the Navy Department as to the present development by the British of their naval aeronautics. What style of aircraft is most used and what is most successful over the water? What is the method of launching at sea when carrier vessel is under way? For coastal patrol and submarine searching what are the types of aircraft used?

This request was complied with in minute detail, and sufficient additional information was furnished the Navy Department to enable it to put forward plans looking to the construction of seaplanes and their accessories. The submarine campaign had at this time reached such an acute stage that it was deemed advisable to request priority of shipments of naval aircraft over those intended for army use and this was granted.

Meanwhile, an "Estimate of the Situation" existing in Europe was prepared, and read as follows:

ENEMY FORCES—THEIR STRENGTH, DISPOSITION AND PROBABLE INTENTIONS
(Fall of 1917)

The number and types of enemy submarines are well known and their probable intentions can be predicted from their past performances. Generally speaking they operate in the lee of the land during bad weather insofar as is possible.

The English Channel, the Irish Sea, and the south coast of Ireland are favorite localities during the winter months. During the summer months enemy submarines as a rule extend their activities to seaward and to the southward into the Bay of Biscay.

The east coast of England, and Scotland and the Mediterranean Sea are operating areas throughout the entire year.

The enemy maintains command of the air over the North Sea from Dunkirk to the northeastward.

Enemy anti-aircraft defenses are efficient and compel increasing altitude when flying in their vicinity.

From this information we deduced our mission to be:

(a) To make our primary air effort a continuous bombing offensive against enemy naval objectives.

(b) To make our secondary air effort a patrol of those areas frequented by enemy submarines in readiness for a tactical offensive.

(c) Troop and merchant convoy escort duty.

This general policy was endorsed by Admiral Sims and agreed to in principle by the Navy Department, and while the personnel and the material essential to our war operations were being assembled in the United States we, on the other side, proceeded to dig ourselves in, so to speak, by building the several air stations as shown on the diagram on the following page.

In spite of our relative unpreparedness in aviation, it is a noteworthy fact that the first American force to land in Europe was the First Aeronautical Detachment, consisting of six officers and sixty-three enlisted men. This detachment reached France on June 5, 1917, and immediately went into training for active service. From this modest beginning our air force grew steadily until at the date of the Armistice, November 11, 1918, it included in its organization 1,147 officers and 18,308 enlisted men operating more than 400 aeroplanes and seaplanes, 50 kite balloons, and 3 dirigibles. It had to its credit a total of 22,000 flights and had patrolled over 800,000 nautical miles; all of this with only nineteen casualties. Truly, a record of which the American people may be justly proud!

The building up of the personnel and equipment, however, was but a part of the task; the men and the machines must be housed, landing fields and repair shops be provided—in fact, everything necessary to render offensive operations possible. This meant the construction of bases. Some idea of what this "digging in" process was may be obtained by the realization that it involved the use of 21,384,000 feet of lumber, or sufficient to build a boardwalk, one foot wide, from New York City to the island of Malta—

a distance of 4,127 miles; that the total cubical contents of all structures erected, if assembled and made into one, would represent a box in which ten Woolworth Buildings could be housed; that 500 miles of telephone wires were run and hangars were assembled sufficient to cover forty city blocks if made into one.

The total appraised value of all this construction work was approximately $11,250,000,—the total sum expended in aviation was $52,256,398—a large sum of money, but an investment

which would, I think, have returned us handsome dividends had the war continued. Indeed, by the summer of 1918, we began to see and feel the results of our efforts, for eleven stations had been built, of which six were in operating commission with planes which we had borrowed from our Allies, and by the end of the year our total war strength stood as follows:

TOTAL STRENGTH OF THE U. S. NAVAL AVIATION FORCE, FOREIGN SERVICE AS OF NOVEMBER 11, 1918

	Station	War Operations Commenced	Aircraft Nov. 11, 1918	Number of Flights	Sea Miles Patrolled	No. of Officers	No. of Men
France	Brest	Aug. 1, 1918	30 Seaplanes	211	7,355	31	814
	Fromentine	Aug. 9, 1918	14 Seaplanes	335	38,009	31	372
	Arcachon	Oct. 1, 1918	7 Seaplanes	106	8,727	26	318
	L'Aber Vrach	July 23, 1918	19 Seaplanes	355	29,302	41	458
	Ile Tudy	Mar. 7, 1918	21 Seaplanes	1,238	104,877	22	363
	Le Croisic	Nov. 18, 1917	16 Seaplanes	1,045	113,324	24	337
	St. Trojan	July 3, 1918	13 Seaplanes	246	19,533	26	343
	Frequier	Sept. 30, 1918	8 Seaplanes	30	1,380	16	266
	Dunkerque	Mar. 18, 1918	12 Seaplanes	491	45,630	7	205
	Paimboeuf	Mar. 5, 1918	3 Dirigibles	257	48,630	30	477
	Guipavas	No operations	1 Dirigible	.....	.....	15	396
	Gujan	No operations	None	.....	.....	10	240
	Brest (k.b)	Test Flights	22 Kite Balloons	.....	.....	18	59
	La Trinite	" "	4 Kite Balloons	.....	.....	5	150
	La Pallice	" "	4 Kite Balloons	.....	.....	9	216
	Pauillac	Test Flights	81 Seaplanes	Test 372 Training	Test 15,085 Training	133	4,071
	Repair Base, July 2, 1918						
	Moutchic (School)	Training Flights Nov. 11, 1917	24 Seaplanes	10,807	242,320	57	493
Ireland	Queenstown	Sept. 30, 1918	28 Seaplanes	64	11,568	72	1,426
	Lough Foyle	Sept. 3, 1918	7 Seaplanes	41	6,000	20	432
	Wexford	Sept. 18, 1918	5 Seaplanes	98	19,135	22	405
	Whiddy Island	Sept. 25, 1918	3 Seaplanes	25	3,870	18	400
	Castletownbere	May 21, 1918	16 Kite Balloons Test Flights			12	91
Italy	Porto Corsini	July 25, 1918	17 Seaplanes	745	?	27	360
	Lake Bolsena	Feb. 20, 1918	8 Seaplanes	5,540	?	11	69
England	Killingholme	Feb. 19, 1918	46 Seaplanes	404	92,797	91	1,324
	Eastleigh	Sept. 24, 1918	41 Seaplanes	Test Flights		70	1,928
Northern Bombing Group		July 20, 1918	35 Aeroplanes	80 tons of bombs dropped		294	2,154
	Total War Flights	5,691			549,078		
	Training	16,347			242,320		
	Total	22,038			791,398	1,147	18,308

11 men, 8 officers reported as casualties; 2 officers were taken prisoners of war.

The foregoing table shows that twenty-seven air stations were provided for, of which eighteen were in France, five in Ireland, two in Italy, and two in England. Two of these, Pauillac in France, and Eastleigh in England, were assembly and repair bases, and one, Moutchic in France, was a school for training aviators. All of the others were operating bases.

The mission of the operating base or station was to do all possible damage to the enemy. The conditions determining the use of aeroplanes in land operations are, of course, familiar, and are vastly simpler than the problems confronting the seaplanes, which must operate over the sea, patrolling submarine-infested areas, escorting troop and merchant convoys, searching out mine fields, and making general or specific reconnaissance flights. The following statement gives an idea of the activities of one of our seaplane bases situated on the east coast of England, covering a period of about four months (July 20 to November 11, 1918):

Sea miles patrolled	57,647
Hours of flying	968
Number of flights	233
Average duration of flights	4 hours, 10 minutes
Number of ships escorted	6,243
Number of forced landings	35

The efficiency of the personnel and material of this station is emphasized by the small percentage of forced landings, which, by the way, was typical of all. This indicates that when our seaplanes finally did arrive they were superior to any in existence. Five and even six hour flights in them were the rule rather than the exception. The record was a flight of 9 1-2 hours' duration made by personnel attached to our air station at Queenstown, Ireland. Another notable flight was one of nine hours' duration, the machine carrying a full military load, which was made by personnel attached to our seaplane station at Killingholme, England.

While, as is indicated by the table, the majority of our stations took part in military operations, the most active were those in England and Ireland, Flanders and the Adriatic. Of them all the one at Killingholme, on the east coast of England, near the mouth of the Humber, was not only the most important but in one detail the most interesting. The station was created for the purpose of trying out a scheme for raiding the enemy bases in the Heligoland Bight which had been originated by the British Admiralty. This was, in short, a scheme to transport seaplanes on lighters, or floats, towed by destroyers to within easy striking distance of Heligoland, Cuxhaven, Bremerhaven, Emden, and Wilhelmshaven. When the float had reached its station, it was given an inclined position by flooding a rear compartment,

the seaplane rising from the deck. Although preliminary trials demonstrated the entire practicability of the plan, it was subsequently abandoned because of the fact that the British, in their enthusiasm, let the cat out of the bag by making a test flight in the vicinity of the Heligoland Bight, during which operation a Zeppelin took photographs thus destroying the element of surprise upon which the entire undertaking was based. Furthermore, after the fusion of the Royal Naval Air Service and the Royal Flying Corps into the Royal Air Force the co-operative spirit between the army and the navy sank to a very low ebb, and when these lighters had been built the project had to be abandoned because the Admirality decided that they could not spare the destroyers that were necessary for the execution of the project.

This experiment is further interesting for the light it throws upon the wartime psychology of the British; upon their will to victory. We all know of their strange and new devices for winning the war, which were successful; of their "hush ships," their camouflaged fleets and their "Q" ships. These were successful, but few of us have heard of the many schemes proposed and tried out, often at the cost of hundreds of thousands of pounds, all to no purpose. Nothing, apparently, was too fantastic to be given a trial, and if it failed it was shrugged aside as part of the game.

The original Killingholme project was one of these wild experiments that failed, yet the success or failure of the original plan had no effect upon our subsequent operations there. The location of this base, situated as it was on the east coast of England, directly opposite the Heligoland Bight, was most important from a strategical point of view. It was accordingly developed as a base for ordinary aerial operations, becoming eventually one of the most powerful in existence, with 46 seaplanes and a personnel of 1,928 men; 404 flights were made by these machines covering a distance of nearly a hundred thousand miles. Shortly before the Armistice was signed it was decided to reinforce this station with seaplanes that had been operating from our stations on the French coast. This was accordingly done, and had the German High Seas Fleet taken the seas it would most certainly have felt the pressure of American planes in the North Sea and we would have been in a position to judge of the value of aircraft in a naval action. The ease with which these planes were flown from France and housed at small improvised stations in the

immediate vicinity of Killingholme speaks well for the flexibility of this arm of the service. Although it is somewhat of a digression from the subject in hand, it may be well here to invite attention to the fact that the fundamental principles of aircraft are the same the world over and hence in an Allied campaign they are interchangeable, which is a decided asset from a military point of view. We could fly British, French, or Italian planes with little or no preliminary training, but it is doubtful if we could have operated their vessels had the personnel situation demanded such an expedient.

The concentration of enemy submarines off the Irish coast made that area one of great importance, and accordingly after conferences with the British Admiralty it was decided that we should undertake the construction there of four large seaplane stations and one kite balloon station. From a political point of view it was considered by many in authority that it would be advisable for us to take over all aerial operations in Ireland, but this was not done. We did, however, carry out our agreement to construct and operate these five stations, from which many excellent patrols were made and at least one submarine accounted for.

It would seem from an examination of the chart of sinkings in this area that had these stations been in existence in the early days of the unrestricted submarine campaign the losses suffered would have been greatly reduced. During the month of April, 1917, more than one hundred vessels were sunk within reach of the aircraft which we subsequently had based on Ireland, but by the time our stations were in operation the submarine campaign had lost its effectiveness and was already doomed to failure. The fact that the British did not foresee the importance of establishing aerial stations in Ireland can only be explained on the grounds of insufficient personnel and material or as a strategical blunder on the part of the Admiralty staff. Certainly the creation of these five stations in 1917 would have saved millions of pounds and hundreds of lives.

The establishment of our naval air stations in France was brought about in a curious way. It will be remembered that the first American aviation unit to reach Europe landed in France on June 5, 1917, and consisted of six officers and sixty-three enlisted men in command of an officer of the rank of lieutenant.

This officer had written orders to proceed with his detachment to France and upon his arrival to keep the naval attaché in Paris advised of his whereabouts. Before leaving this country he sought further and more detailed information with respect to his duties, but was unable to obtain either instructions or advice except that if he wanted to go to the war zone he had better leave at once before a change of policy would revoke his orders. Accordingly, upon his arrival in Paris, he proceeded forthwith to enter into negotiations with the French Admiralty, during the course of which he agreed, on the part of the United States, to establish certain naval air stations on the French coast. This was done entirely on his own initiative, and even his presence in Europe was unknown to Admiral Sims until the subject was brought up for discussion at a meeting of the Board of Admiralty, when Admiral Sims was asked to explain the reason for his secretive policy in concentrating a large air force in France when the most vital areas of the enemy submarine campaign lay in and adjacent to the coasts of England and Ireland. In reply Admiral Sims was obliged to explain that the entire commitment was as much of a mystery to him as it was to them; that he had no knowledge of any officer being empowered to represent the United States in France; and, admitting the contention that England and Ireland offered a much more fruitful field for aerial operations against submarines, that he would investigate the matter without delay. To this end he summoned the lieutenant from Paris, and found that in the absence of any orders or instructions he had proceeded on his own initiative to commit the United States to the construction of the several naval air stations as shown on the diagram. In view of this it was considered that his assumption of responsibility and his display of initiative in doing what he did was most commendable.

And so it was that our air stations in France had their beginning. It is probable that had their establishment been the subject of a conference between the Allies and ourselves part of this force would have been diverted to England or to Ireland. As it was, however, these stations were very largely instrumental in driving the submarines from the French coast and in forcing them out to sea, where the concentration of shipping was less great and where in consequence less damage was suffered. Generally speaking, therefore, the concentration of our naval air

effort on the French coast was sound, but in excess of that which was justified by the exigencies of war.

Our aerial activities in the Adriatic began in the early winter of 1918, when, at the request of the Italian Government, we occupied the two Italian stations at Pescara and Porto Corsini. Obviously, our targets were the Austrian naval establishments across the sea, and, although these two stations were not completely finished when the Armistice was signed, we had already accomplished some very effective bombing flights from them and we were making our effort felt in that area.

With reference to our work in the Adriatic, the following dispatch from the chief of staff of the Italian Navy to the Italian naval attaché in London, dated August 25, 1918, is of interest:

American aviation recently began its support for our operations in the Adriatic. An American squadron energetically attacked and forced to return to Pola Austrian aeroplanes met near the Istrian coast. During the pursuit one American machine was obliged to land but a very intrepid aviator took the pilot on board and destroyed the machine. Military works at Pola and especially aviation installations and submersible bases were bombarded by day on the twenty-first, during the night of the twenty-second, and at dawn on the twenty-third, by several Italian machines and some Americans. Four tons of explosives were dropped and numerous explosions and fires were seen. One of our hydroplanes is missing. Large Italian squadrons twice bombarded Durazzo on the same day and dropped 1,500 kilogrammes of explosives on military works starting large fires. Also bombarded military works at Curzola. British aviation units continued to attack Cattaro, damaging bridges, hangars, submersible stations and railway station at Zelenika. Enemy chaser machines undertook some futile counter-operations. We made vigorous counter-attacks, one enemy machine fell in flames and another was obliged to descend. One British machine missing. Enemy aviators attempted to rally. A few Austrian planes on the night of the twenty-first, dropped thirty bombs on Venice, one killed and three wounded, no damage to military works. One dead and four wounded at Cortellazzo attacked the same night. Five enemy machines again attacked Venice on the night of the twenty-third. Dropped a few bombs, no damage done, one civilian slightly wounded. During the night of the twenty-second, there was raid on Porto Corsini. Some damage to military establishments, six civilians wounded. Other attacks on Fiume, no damage. Our efficient anti-aircraft fire compelled the enemy machines to fly very high making their bomb dropping ineffective. One enemy seaplane was forced to come down near Lido. The crew of three was captured.

Entirely aside from the military advantages gained, our presence in the Adriatic was of the greatest value in maintaining the

morale of our Italian Allies, and again our acceptance of the offer to occupy these two stations gave us a foothold in that area which would have been greatly strengthened had the war continued.

Of all our aerial undertakings in Europe, the most ambitious and the most enterprising was the establishment of the "U. S. Naval Northern Bombing Group," which was created for the purpose of bombing enemy submarine bases on the Belgian coast, particularly Ostend, Zeebrugge, and Bruges. As originally planned this unit was to consist of twelve squadrons of bombing and fighting planes, of which four squadrons were to be operated by Marine Corps personnel. In addition, it called for the establishment of an assembly and repair base. This was eventually created at Eastleigh, England, the outfitted planes flying across the Channel to their fighting base. In a subsequent decision of the Navy Department the complement of this group was reduced to eight squadrons, four day and four night, only a part of which had been assembled when the Armistice was signed.

Inasmuch as the planes used by the personnel of this group were of the land type and similar to those used by the army, there was considerable criticism from certain quarters of our having undertaken work which belonged to the army. It is quite true that the planes used were of the army type, because they were best suited to the work in hand, but that we did not encroach upon the army is fully confirmed by the following extract from an official letter addressed to the Secretary of the Navy by the Secretary of War under date of April 10, 1918:

> Referring to the confidential memorandum on Dunkirk-Calais on operations against submarines and the inquiry contained in paragraph 3, the War Department agrees with the Navy Department in its decision that the extension of operations against submarines in their bases as recommended from abroad is purely naval work.

This letter went on to discuss arrangements for the supply of fighting aeroplanes to the navy by the army and other pertinent subjects.

In fact, the topic that occupied the greatest space in all of our communications was the obtaining of aeroplanes. This was the greatest problem of all, and one not fully solved even at the close of hostilities. So little, indeed, did the output of planes keep pace with our construction work that the greater part of the bases were completed months before the planes were received. We

tried to remedy this state of affairs by placing contracts with the Italian Government, which contracted to supply us with a number of bombing planes, for which it was to receive in turn cargoes of raw materials such as iron, lumber, etc. These contracts were consummated and some of the planes were delivered, but they proved unsuited to our requirements. The attempt was made to deliver these machines by air from Milan, Italy, to Flanders, but a large proportion were unable to stand this test and were crashed. This, however, was not strange for it meant crossing the Alps—a hazardous undertaking, but one more than justified by the necessity for immediate delivery of the planes.

The personnel of this unit, however, had not been idle in the meantime, for they were billeted as reinforcements with the French and British squadrons operating in the Flanders area, with whom they carried out many highly successful flights, during which they dropped about 100 tons of explosives on enemy objectives.

The group began active operations on its own initiative on October 14, 1918, at which time a raid was made on enemy railway lines at Thielt, day and night raids being made until October 27, eight raids in all being carried out. The "mission" of the Northern bombing group, however, was accomplished by the evacuation of the enemy's naval bases on the coast of Belgium. The naval situation in that area was, therefore, of an entirely satisfactory nature, but as conditions on land were not so satisfactory it was decided that the Northern Bombing Group should continue to operate in conjunction with the Allied armies in Flanders until the crisis that existed should have been overcome.

In a letter to the British Admiralty, dated October 15, 1918, Admiral Sims refers to this situation as follows:

> Although the commander of the U. S. Naval Northern Bombing Group has reported his command to the Vice-Admiral commanding the Dover Patrol for orders and is, therefore, nominally under his command, the U. S. Naval Northern Bombing Group is at the present time operating under the orders of the officer commanding the 5th Group, Royal Air Force.
>
> It is proposed, with your concurrence, that during the present offensive this U. S. Naval Aviation Unit should continue to operate in conjunction with the Royal Air Force Units for the destruction of those objectives possessing the greatest strategic value and as indicated by the Commander of the 5th Group, Royal Air Force.

This practically places the U. S. Naval Northern Bombing Group under the command of the 5th Group, Royal Air Force, and, inasmuch as I understand this to be entirely satisfactory to the Vice-Admiral commanding the Dover Patrol, I do not hesitate to express my entire agreement with the existing arrangements and sincerely trust that they will meet with your approval. I think the close co-operation established between the U. S. Naval Aviation and the Royal Air Force Units in this area will result in combined offensive raids against enemy objectives with excellent effect.

There are at the present time in operating commission three *Capronis*, four *D. H.-9a's* and seven *D. H.-4's* actually operating under the command of the U. S. Naval Northern Bombing Group. In addition, ten *Handley-Pages* and nine *Capronis* are expected to be in operation within the next three weeks with a minimum delivery of ten *Capronis* per month thereafter. We are now engaged in the assembly and erection of fifty-four *D. H.-9a's* and fifty *D. H.-4's*, all of which will be allocated to the Northern Bombing Group as rapidly as they are ready for offensive operations against the enemy. In addition, there are 100 *D. H.-4's* in course of construction in the United States, upon which work is being rushed as much as possible.

Due to certain extenuating circumstances, it is impossible at the present time to give you exact dates when these squadrons will be completely organized and ready for duty. I shall, however, inform you in the course of the next week of probable dates which will, it is sincerely hoped, be realized.

It will thus be seen that, although the Northern Bombing Group was originally created to exterminate the submarines from the coast of Belgium it eventually wound up as a part of the British Army in the great drive of 1918, but not until after it had been offered to General Pershing and declined on the grounds that it could be used to greater advantage where it was and in conjunction with the British. During this drive it advanced successively from the operational command of the British vice-admiral commanding the Dover Patrol to that of the French admiral commanding the Flanders area, until it was finally placed under the orders of the Belgian authorities into whose command it had advanced and with whom it operated until the Armistice was signed.

Having reviewed briefly the reasons governing the strategical employment of our Naval Air Forces as of the time of the cessation of hostilities, it may be appropriate to outline what our plans for the future were when the war came to an end.

By the end of September, 1918, we had concluded conferences

with the French, British, and Italian Governments as a result of which we had urged certain recommendations to the Navy Department, of which the following is a summary:

1. That seaplane operations from U. S. stations already built or authorized should continue with the exception of Dunkirk and without consideration of the Italian seaplane stations which will be the subject of conference with the Italian Government. The character of the operations to be adjusted to operating conditions.

2. That the principal augmentation of our air effort should be in bombing squadrons, the mission of which shall be the destruction of enemy naval bases, especially submarine bases.

3. That naval bombing squadrons shall be composed of day and night bombing aeroplanes of the land type augmented as necessary by protecting squadrons of fighting aeroplanes of the land type.

4. That in aircraft for fleet use each navy shall proceed as it deems most desirable.

5. That conference with the Italian Government shall determine future American and British air effort in Italy with especial reference to the Adriatic area but that it is highly probable that British bombing operations against enemy naval bases in the Adriatic shall be taken over and augmented by the U. S. Navy in co-operation with the Italians. The British forces thus released to augment British forces in the Aegean Sea. Subject to further investigation this will probably require twelve night squadrons, six day squadrons and a few squadrons of fighting planes.

6. That planes and production be started at once with which to begin bombing operations against enemy naval bases in and near the Heligoland Bight.

These recommendations met with the approval of Admiral Sims and of the Navy Department, the latter and the final authority, however, specifying that seaplanes only should be used in the Adriatic. No explanation of this decision was ever vouchsafed to us and in our opinion the efficiency of the entire project would have been reduced by at least twenty-five per cent had we been obliged to use seaplanes instead of land planes for operations in that area where the over water distances were small.

One further point in connection with these recommendations which is of interest from an historical point of view is the fact that they were approved and cabled to the Navy Department on September 30, 1918; this shows how little we expected armistical proceedings at that time.

The work of the U. S. Naval Air Force was all the more remarkable in that it was in the main accomplished by men who had

no previous training or experience in aviation. In fact, the majority of the personnel was drawn from the Naval Reserve Force, recruited from every phase of civil life. No words can adequately convey the enthusiasm and devotion of these young men. It is an interesting commentary on their spirit, that, almost without exception, those who enrolled begged for billets at the stations where the service was most arduous and dangerous.

From its conception until the summer of 1918, the U. S. Naval Air Force, Foreign Service, was an independent command with its administrative executive located in Paris. As its activities expanded, however, to include England, Ireland, and Italy, it was considered advisable to amalgamate it with those other forces which were operating under the direct personal control of the commander of the U. S. Naval Forces operating in European waters. This change was accordingly made, and as aide for aviation the administrative director was located in London in immediate contact with his direct superior. Here a large subdivision of the staff was created which counted in its organization more than fifty officers with appropriate clerical assistance. These officers were, for the most part, technical assistants representing the several bureaus of the Navy Department. No direct orders were ever issued from London, as this authority was delegated to those detachment commanders under whom our air units operated. Obviously any other procedure would have been impossible. Our naval air station at Killingholme, for example, was placed under the operational orders of the British vice-admiral commanding the defenses of the east coast of England, and any specific orders which we wished to have transmitted to its commanding officer affecting its military control were transmitted via the British Admiralty. This principle was, in effect, the same as that upon which our destroyers based on Queenstown were operated. In all administrative respects, however, the stations maintained their identity as American units.

The functions then of the Aviation Section of the Force Commander's staff were to create, supervise, and to co-ordinate the efforts of the whole. As reinforcements became available from home, the subject of their most advantageous employment would be laid before the Supreme War Council, of which Admiral Sims was a member, and the decision in turn transmitted to the Aviation Section for execution.

No account of the wartime activities of our Naval Air Force would be complete without a brief mention of the fusion of the British Royal Naval Air Service with the Royal Flying Corps to form the Royal Air Force. This amalgamation, or more properly speaking this annexation, of the Naval Air Service by the army took place on April 1, 1918, and was perfectly sound and fully justified at that time. The navy was, so to speak, resting on its oars; the submarine campaign was already doomed to failure and the German High Seas Fleet was powerless. On the other hand, the enemy was very far from defeat on land, and all possible reinforcements were needed to bring about a victory in this quarter. It was, therefore, perfectly logical that the Naval Air Service should have been called to the support of the hard-pressed army, and the easiest way to accomplish this was to amalgamate. It was in effect a virtue of necessity, and the Admiralty acquiesced with such grace as only true sportsmen can muster in the face of necessity. The very life of the Empire was at stake, and no sacrifice was too great to make for its salvation. And so the Admiralty sent its Naval Air Service as reinforcements to the army, but whether they were given or only loaned time alone will tell. To date the Royal Air Force is still in existence, but I venture the belief that in the heart of every British naval officer is the firm hope and conviction that eventually the Royal Naval Air Service will be returned to its own.

Although there can be no doubt that, for military reasons, the British were justified in amalgamating their air services when they did, for political reasons they were most anxious to have us do likewise and by so doing rout the critics of this new scheme. To this end several missions were sent to Washington to lay before the authorities there the advantages to be gained by such action. Fortunately for us, however, both Admiral Sims and General Pershing vigorously opposed amalgamation, and in view of this powerful opposition it did not take place although there were and for that matter there still are strong influences at work to bring it about. We may, at some future time, be forced to amalgamate just as the British were, in order to save the nation from defeat, but to do so before that time comes will seriously handicap the navy, and more especially the fleet, in its operations as a unit. Soldiers cannot run ships, nor can sailors run an army, and there is as much difference between naval and military

air strategy and tactics as there is between the ship and the regiment.

And now, in conclusion, I desire to invite serious attention to the very important aspects of the late war in their relation to the employment of aircraft. In the first place, the naval war—the combat between surface craft—was practically over before the perfection of aircraft made that weapon one which must be taken into account in naval battles of the future. Had the British, or the Germans, possessed planes capable of carrying bombs of 1,000 pounds capacity and more, the story of Jutland might, and very probably would have been, a very different one from that which now stands. The sinking of the ex-German ships by U. S. naval aircraft in the summer of 1921 was a very impressive lesson and one to which we must give heed in anticipating the future. It was demonstrated at that time that the destructive effects of our aerial bombs were even greater from an underwater explosion than from a direct hit, so that to those critics who say that aircraft cannot hit the target this knowledge must come hard. As a matter of fact, aircraft can hit, not with the same degree of precision that the great guns hit, but much more accurately than our navy could in 1898. Aerial gunnery is now in the process of transition from the infant state to that of maturity, and it is only a question of a very short time until bomb dropping from aircraft will be accomplished with the same skill and dexterity as is now expected and in fact demanded of our warships in their target practices.

With respect to gas warfare, the possibilities are almost unlimited. Gas bombs have been perfected which explode upon contact with the water, against which the surface craft of today is impotent. This phase of aerial warfare then offers a tremendous field of employment unless poison gas is really prohibited in the next war.

In the second place, the progress which has already been made in aviation since 1918 makes our efforts of only four years ago seem almost crude in their simplicity. In 1914, the aeroplane was a toy; in 1918, it was a recognized weapon of legitimate warfare; and who can predict its future? A few very far-seeing and still intellectually-young men know what it will be, but unfortunately for us the majority are not only critical but exceedingly skeptical of this new arm of the service.

The Great War was almost lost by the Allies because of the fact that they could not, or would not, or in all events that they did not appreciate the military value of the submarine until it was almost too late—until the First Sea Lord of the British Admiralty was forced to admit to Admiral Sims in April, 1917, that "the Germans will win unless we can stop these losses—and stop them soon."

In order, therefore, to preclude the possibility of any nation or combination of nations reproducing a similar state of affairs in the next war with aircraft substituted for, or at least augmenting its submarine effort, it behooves us to give aviation full credit for what it has already accomplished and to view its future with optimistic fairness and with an open mind.

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U. S. NAVAL INSTITUTE, ANNAPOLIS, MD.

IS THE FLEET STRATEGICALLY CONCENTRATED?

By Commander F. M. Perkins, U. S. Navy

I

"There is thus a concentration of mental and moral outlook, of resolution, as real as the physical concentration of disposable forces."—Mahan.

"Like every sound principle, concentration must be held and applied in the spirit, not in the letter only; exercised with understanding, not merely literally."—Mahan.

Before the Panama Canal was undertaken, and during the period of its construction, there were frequent revivals of the question of dividing the fleet between the Atlantic and Pacific. The influences which sought to divide it were mainly political in their origin as were also others which strove for its retention in the Atlantic. The latter, in themselves the stronger of the opposing influences, had the weight of professional opinion in their favor, largely guided by the constant warnings of Mahan and other officers of the navy who clearly read the teachings of naval warfare and accurately pointed the way toward applying their principles.

Not only did the general teachings of naval history demand the retention of our navy in the Atlantic but the specific factors which composed the international situation in the years before the existence of the Canal and the outbreak of the World War dictated the same course of action.

The outstanding features of this period affecting the disposition of our fleet were the rapid growth of the German navy and its advancement to second place in the navies of the world, German commercial development in the Central and South American republics and the impending struggle between the mistress of

the seas and her self-announced rival, foreshadowed by the gradual concentration of the British navy in and about home waters.

The commercial expansion of Germany in South America had been no less rapid than her naval expansion at home. Their simultaneous growth was, in fact, interdependent; each was supplementary to and promoted the other. The larger navy afforded protection to the larger merchant marine and inspired German merchants with the confidence necessary for embarking on vast commercial conquests; the larger merchant marine was the carrier of the wealth which made the larger navy possible. The rich, undeveloped continent of South America was the mine which in large part contributed to both and from which Germany was rapidly quarrying the foundation stones upon which she proposed to rear her structure of world commercial and military dominion.

Her commercial colonization of South America, if not actually intended to develop into immediate political colonization, threatened, by its thoroughness and rapidity of growth, eventually to become as effective as if it were political in fact and gave promise of bringing up many delicate political problems in the future.

Between Germany and her rapidly materializing South American dreams stood the nominal barrier of the Monroe Doctrine of the United States which was and is and always will be equal in actual force to the strength of the navy of the United States —but no stronger. The navy of the United States at this time was, numerically, a poor third. Fortunately, England's interests and those of the United States lay in the same direction and for years not the Monroe Doctrine, not the American navy, but the navy of Great Britain was the real barrier which interposed between Germany and German territorial acquisitions in South America.

These, then, were the deciding factors which dictated the concentration of the United States fleet in the Atlantic. True, there were occasional rumblings in the Pacific and frequent demands from the West Coast states for a part of the fleet but they were without sufficient influence to effect the division. The center of the next storm area was rightly judged by the government to be in the Atlantic and there, by the decision of the Navy Department upheld, perhaps, by the political influence of the Eastern seaboard states, the fleet remained.

It is probable that the opening of the Panama Canal would have resulted in the early division of the fleet between the Atlantic and Pacific had it not occurred almost simultaneously with the outbreak of the World War, for with the completion of the Canal tactical division became possible without sacrificing strategical concentration, within the ordinarily accepted meaning of the latter term.

The division of the fleet between the two coasts of the United States was postponed for several years by the World War. With its close came a vast re-arrangement of world forces, political, military and economic. The great High Seas Fleet—the German navy—was no more. Vanished also was the great German commercial web which was being spun so rapidly and efficiently about South America.

For the first time in centuries Great Britain accepted the idea of a naval equal on the seas. This same equal had, in an inconceivably short time, developed a merchant marine, from almost nothing to one which threatened the supremacy of England's mighty commercial fleet. For the United States the Atlantic atmosphere was cleared.

But the same world upheaval, which had so greatly enhanced our military and commercial prestige and had solved our problems in the Atlantic, had, simultaneously, added to the military and commercial prestige of a possible rival in the Pacific. The contemporaneous growth of United States and Japanese merchant shipping in the Pacific, the award of the German Pacific Islands north of the equator to Japan, the cession of Shantung, the prolonged Japanese occupation of Siberia and Sakhalin Island, the great naval building programs of the United States and Japan were new factors and their possible bearing upon the great British, French, American, Japanese, and Dutch eastern colonial systems, together with the still troublesome question of Oriental immigration in the United States, combined to shift world interest from the Atlantic to the Pacific and to center national and international attention upon the new situation created, and especially upon the new significance of the Open Door in China.

This new Pacific situation together with the vitally important strategic fact of the existence of a successfully operating Isthmian canal silenced the political guns of the proponents or an

all-Atlantic navy and removed serious professional objection to the division of the fleet. Perhaps the great size of the navy, built and building, removed the fear that Atlantic navy yards might be left without work and thereby helped to quiet political opposition; possibly it became necessary to focus the Congressional attention upon the inadequacy of the West Coast navy yards against the day when they might be called upon to maintain the reunited fleet or to launch it forth into the Pacific; perhaps it was considered that, with the completion of the 1916 building program, we would actually have two principal fleets and that the time had come to take the first step in establishing them. Whatever the cause or causes may have been, the much discussed and long contemplated creation of a Pacific fleet of first-class ships followed closely upon the heels of the new situation.

In the summer of 1919 the fleet was divided into the Atlantic and Pacific fleets of approximately equal numerical strength, each with its own battleships, destroyers, submarines, auxiliary vessels, and aircraft. Since then the distribution of forces between the two has been modified by a gradual strengthening of the Pacific fleet at the expense of the Atlantic, but the underlying idea of two fleets, one in the Atlantic, the other in the Pacific, still remains the basis of the organization of the navy in theory and the distribution of the fleet in fact, apparently accepted unquestioningly as tactically, strategically and administratively sound, both by the professional thought of the navy and the lay thought of the country at large. And yet, although divided in two fleets for peace purposes, the necessity for concentrating them in time of war is recognized by providing an organization for combined operations.

This very brief review of the outstanding events and circumstances which preceded the division of the fleet and led up to its present distribution is but preliminary to the question which it is the purpose of this paper to discuss.

II

"Is the Fleet Strategically Concentrated?"

At first blush, it would appear that to ask this question is to answer it.

The writer has no desire to attempt to qualify as a naval strategist, for he has not, as yet, had the advantage of War Col-

lege training. His desire is to invite consideration of the subject of the strategical concentration of the fleet from a point of view which endeavors to be somewhat broader and more inclusive than that which is ordinarily accepted as the academic point of view of strategical concentration and this, without sacrifice or compromise of any of the essential truths which guide but possibly also limit the trained strategist in the field of pure strategy.

He comes, therefore, not as the bearer of a message but, humbly, as a seeker of truth, hoping that others more capable may point out the error of his ways and allay the doubts and misgivings which have arisen in his own mind concerning the strategical concentration of the fleet.

Through the reading of various books on naval strategy and similar subjects there has gradually developed in the mind of the writer a conception of the term "concentration," as applied to warfare, which comprehends many more factors than those of position, distance and speed and which assigns to "concentration" many other first cousins than "central position," "interior lines," and "communications."

This broader conception of concentration gives to it great elasticity and endows the idea with the ability to clarify and illuminate many little problems of everyday life as well as those of wider meaning. It serves, for example, as a guide to the mind in arriving at a correct decision concerning the distribution of a few individuals for accomplishing a given result no less than it serves as an aid to correct reasoning in arriving at a decision concerning the tactical or strategical distribution of a fleet for accomplishing a given mission.

According to this conception, concentration—"strategical concentration"—is not merely a geographical matter concerning factors entirely measurable upon a chart, but true strategical concentration, in addition to the factors of positions, distances and speeds, includes many others which are just as truly a part of strategical strength and upon which strategical concentration just as truly depends.

Strategical concentration, in other words, is not realized in its entirety merely because two detachments of a fleet or force occupy such positions with relation to each other and to the enemy that they may join and reinforce each other without danger of becoming separately engaged. This would be a very narrow

view of strategical concentration and yet it is one against which we must be on guard. Strategical concentration in its widest application should include consideration of many factors other than the distribution for ready physical mobilization, factors which, in time of peace, are being developed for the purpose of adding to the strength of the fleet in time of war.

After discussing the subject of concentration and illustrating his meaning by historical examples, Mahan issues a specific warning against accepting a too narrow interpretation of the term. In pointing out that concentration means mutual support, that mutual support does not necessarily imply direct contact but that "a considerable separation in space may be consistent with such mutual support"; he says:

"Like every sound principle, concentration must be held and applied in the spirit, not in the letter only; exercised with understanding, not merely literally."

The wide applicability of the idea of concentration "in the spirit" is illustrated occasionally by Mahan in his various writings. For example: "The same consideration (concentration) applies to ship design. You cannot have everything. If you attempt it, you will lose everything; by which I mean that in no one quality will your vessel be as efficient as if you had concentrated purpose on that one. On a given tonnage—which in ship-building corresponds to a given size of army or of fleet—there cannot be had the highest speed, *and* the heaviest battery, *and* the thickest armor, *and* the longest coal endurance, which the tonnage would allow to any one of these objects by itself."

Again, in discussing Rojesvenski's dispositions before the battle of Tsushima, Mahan points out that the Russian admiral labored under self-imposed tactical handicaps which were the result of a strategical blunder which, in turn, resulted from a "lack of unity of conception, of that exclusiveness of purpose which is the essence of strategy."

What are "unity of conception" and "exclusiveness of purpose" but the principle of concentration "applied in the spirit"?

Rojesvenski's mind was divided between battle and escape. He overloaded his vessels with coal, reducing their speed and lessening their maneuvering ability. He took his train with him and suffered the resulting tactical embarrassment. He failed to *concentrate* on the idea of battle; he failed to *concentrate* on the

idea of escape. He did not even concentrate on a combination of the two ideas and form a suitable plan for carrying out that one which opportunity should favor. He lacked exclusiveness of purpose, concentration; he compromised—and lost.

These two examples, to which might be added many more, serve to point the way toward appreciation of the wide application of the idea of concentration in its military sense to other things than positions, distances and speeds and to show that true strategical concentration comprehends far more than a distribution of forces which enables them to concentrate without danger of being beaten in detail. It includes "unity of conception," "exclusiveness of purpose." It includes concentration of ideas, the habit of concentration of thought.

"There is thus a concentration of mental and moral outlook, of resolution, as real as the physical concentration of disposable forces."

We should bear in mind that even the narrowest and most academic point of view of concentration refers to the concentration of *force*, not necessarily synonymous with concentration of *numbers;* therefore if the division of numbers operates to weaken or lessen the force which any detachment in itself should be capable of contributing, the distribution, although it may be geographically correct, is strategically unsound.

True concentration, then, includes not merely the ready mobilization of the fleet but it presupposes, as its very essence, the complete readiness of the fleet to develop at the moment of mobilization the maximum offensive power of which it is or should be capable.

Such complete readiness is based upon many factors which are in daily process of growth, stagnation or disintegration; factors which are elements both of tactical and strategical strength; factors upon which the entire battle fleet must be daily concentrating with "unity of conception" and with "exclusiveness of purpose."

These factors might be greatly varied and extended; the writer conceives the essential ones to be: 1. Leadership; 2. Loyalty; 3. Discipline; 4. Fleet spirit; 5. Training.

III

Leadership:

If the history of naval warfare teaches any one lesson which stands out from all others, it is this: That the character, spirit, ability and example of the commander-in-chief far outweigh any other factor on the day of battle. As a corollary of this proposition it need only be stated to be accepted that his influence will be felt throughout the fleet according as his commanders, his captains, and his officers understand his character, are endowed with his ability, inspired with his spirit, and capable of intelligently interpreting and following his example. This was the main-spring of Nelson's genius and it came about not through mere casual association with his subordinates, but through his deliberate cultivation of their acquaintance and his persistent, personal instruction in his own ideas.

The genius of leadership is partly inborn, partly acquired. Whatever its source may be, it is indisputable that it can reach its full growth and exercise its full control only when those through whom it must be exercised are capable of receiving, transmitting, and putting into action its commands; quickly, accurately, intelligently, and sympathetically.

Especially is this necessary in naval battles, which may be won or lost in minutes, where tactical plans are certain to be modified and perhaps entirely changed to meet the rapidly changing situations; where the issue may depend upon the initiative of a subordinate commander who must act on the instant without time to communicate with the commander-in-chief.

Not only should the commander-in-chief have commanders and captains who thoroughly understand his own ideas and methods, but he should, himself, through personal acquaintance with them have an intimate knowledge of their individual characters, capacities and special abilities, as well as their weak points.

What commander-in-chief, upon being joined by half his battle fleet on the eve of battle, would not wish that he might have had its commander and subordinate commanders and captains under his personal training and observation, not for a few days or weeks but for many months—yes, or years? What would he not give to know through previous personal contact, the characters and special abilities of his newly joined subordinate commanders

and captains as well as he knows those with whom he has been serving? A crisis arises in the battle. A special situation demands special action, perhaps not provided for. The unexpected happens. Who will best meet the emergency? Who will understand intuitively his wishes expressed in the least number of words when the life of the nation is being measured by seconds? Which division commander has cool judgment in a crisis? Which one must be given detailed instructions? Is there one to whom a word will tell everything? Is he determined, resolute? If the situation again changes, will he know what to do? It may be there is dangerous work for a destroyer squadron. A desperate chance must be taken. The work to be done is clear. Judgment is not required as much as dash, reckless daring. Who will best meet these requirements? And so on.

These are real situations. Great battles are filled with them. Campaigns are filled with them.

Indoctrination will facilitate the work of the commander-in-chief; it will not replace intimate knowledge of the characters and special abilities of his subordinates. Nor will it replace knowledge and understanding on the part of subordinates of the character, methods and ideas of the commander-in-chief. Such mutual knowledge and understanding can be gained only by intimate and continued association. Indoctrination gives us all the same point of aim; it does not reduce us all to a common caliber nor assign us all the same muzzle velocity. We are not standardized and until some method is discovered of standardizing character and reducing human talents to a common denominator, we never *will* be standardized. Personal knowledge on the part of the commander-in-chief of the character and abilities of his commanders is not an imaginary asset. The history of fleet actions proves that it is not. To a great leader it is as real an asset as the commanders themselves and the ships which they command. Can this knowledge be gained when part of the fleet is in the Atlantic and part in the Pacific except for brief periods each year? Can circular letters and general orders and all the forms of organization that departmental ingenuity can provide, weld into one inspired whole for the day of battle, a fleet divided by thousands of miles and under two commanders-in-chief in time of peace? *Are we concentrated on leadership?*

IV

Loyalty:

Loyalty is of two kinds: that which we give involuntarily because of affection or admiration for an individual and that which we give more deliberately because of our respect for the office which he holds.

The first is born of an influence which the individual exercises over us through some indefinable attribute which, for want of a better term, we call charm, personal magnetism. The fortunate leader who possesses this quality commands our loyalty doubly; we render him not only the loyalty which is due out of respect for his office but also the personal loyalty which he inspires.

The second is born of military training and of allegiance to a common cause. He who would command a full measure of loyalty to the office which he holds must exercise the duties of that office in a way to command respect and must uphold the high traditions to which he is heir.

The leader who inspires our personal loyalty does so largely by virtue of his opportunity for knowing us and of our opportunity for knowing him. We must feel his living presence to be inspired; even the most humble of us must occasionally have the opportunity of seeing him in the flesh. The flower of personal loyalty thrives in the soil of admiration and affection when cultivated with a human, personal touch. It flourishes in the warm air of personal acquaintance, but it dies in the cold, dry atmosphere of aloofness, distance.

The leader who does not possess the inborn gift of inspiring personal loyalty may aspire to develop it in some measure by deliberate effort. His high office carries with it our respect, our deliberate loyalty. Through the execution of the duties of his office he may soon command our admiration and this, in time, may ripen into a sense of personal loyalty which approaches in depth of feeling that given through affection. But it is a plant of slow growth. It is not readily susceptible to forcing. Its essentials are time and the opportunity for personal attention, acquaintance. Its enemies are aloofness, coldness, distance.

Can the spirit of fleet loyalty to the one and only leader who can command in chief on the day of battle reach its full devel-

opment with the fleet maintained in two detachments several thousand miles apart? Will the fleet, which finds itself suddenly become a fleet on the eve of battle, be inspired by complete personal loyalty to a commander-in-chief who has theretofore commanded only a part of it? *Are we concentrating on loyalty?*

V

Discipline:

The quality of the discipline of a ship's company is invariably a reflection of the aptitude for command of the ship's captain.

If an able captain has indifferent officers with which to work he will encounter difficulty in bringing his crew to the state of discipline which he desires, for he must first instruct and, possibly, discipline his officers but, in the end, his standards will prevail and become those of the officers and crew. They may be somewhat modified by the handicap under which the captain works but, eventually, the tone of the ship will be that which he gives it.

If a captain of little or indifferent aptitude for command has an excellent set of officers under him the slack standards which he sets will prevail and become those of the officers and crew. They may be somewhat modified by the efforts which his officers will make for a while but finally they will tire and the tone of the ship will be that which he gives it.

These things are true of any organized activity; commercial, military or naval. Especially are they true of ships where the leader, the captain, lives in such daily intimacy with his men; where his authority is so supreme.

As the officers and crew of a ship reflect the standards of discipline set by the captain, so do the captains of a fleet reflect the standards set by the commander-in-chief, modified only by their varying abilities and aptitudes for carrying out his wishes and by the extent to which they, themselves, are disciplined.

There are many ideas of what constitutes a proper state of discipline and varying methods of acquiring it. The appearance of ship's boats, the quick stand to attention, the smart salute, quietness, order, precision, are the outward forms which, to some, indicate a proper state of ship's discipline. Others are content

with less of form and look elsewhere for the tell-tale signs of discipline; they read it in facial expressions, in the tone of the voice, in idle conversations. They are content with the spirit of discipline if the form is not altogether outraged.

Actually these two ideas are not altogether opposed nor are they incompatible. They are, in a degree, complementary and are often co-existent in the same ship and with excellent results. They are simply manifestations of the differences in individuals and of their different ways of accomplishing the same result. The "sun-downer" and the captain who holds the personal affection of his entire crew may get an equal number of hits on the day of battle. Between these two extremes are found varying temperaments in which both tendencies exist, one or the other predominating or the two, perhaps, reaching a balance.

It is fortunate that captains do not have to lean to one extreme or the other to be successful; it would be very difficult, indeed, to find enough out of one mold to supply the fleet. "Different ships, different long splices"—and most of the long splices hold up under strain.

It goes without saying that discipline, in the sense of punishments and reprimands, must be fair and impartial. But there is another underlying principle equally important—consistency. The captain who rules with a rod of iron must maintain that rule consistently to maintain the respect of his officers and crew. This does not mean that he may not have his human moments, that he may not commend good work, that he may not even look pleasant. It does mean that he shall not be harsh or strict one day and lax the next in his punishments, his methods and his bearing, for his laxness will be interpreted as weakness and he will lose his grip on officers and crew.

Similarly, the captain who rules largely through the personal affection of officers and crew may not indulge in too frequent bursts of temper. This does not mean that he may not be strict on occasion or severe in his reprimands or punishments when necessary. It does mean that he shall not be too changeable; pleasant one day and harsh the next, or he will forfeit that which constitutes the greater part of his natural aptitude for command.

Now all this apparently has very little to do directly with the question or the strategical concentration of the fleet. But

it is for the purpose of showing that, whatsoever the means of bringing a large organization to a satisfactory state of discipline, the guiding principle is consistency, uniformity, "exclusiveness of purpose," concentration.

As it is in a ship, so it is in a fleet. Consistency and, as far as obtainable, uniformity of standards must obtain to develop the highest state of discipline. Limited only by the capacities of its several captains, the standards of discipline of a fleet invariably reflect the standards of its commander-in-chief. Since human beings are what they are it is inevitable that a divided fleet will have divided standards of discipline. Will not such divided standards, developed and maintained through years of peace, serve to lessen the effective power of a fleet united in time of war? *Are we concentrated on discipline?*

VI

Fleet spirit:

The spirit of a fleet is a subtle, intangible thing, difficult to define. To analyze it, subdivide it, classify its component parts and properly tag each one requires the skill and knowledge of a trained psychologist and, unless he himself has lived in and been a part of the fleet, he is apt to go wrong.

It does not, however, require a trained psychologist to be able to realize the fact of the existence of this very real thing which we call fleet spirit and to observe its effects. One need not have studied psychology or even know the meaning of the word to realize that the spirit of the fleet has a very definite and recognizable character of its own, or to be able to perceive that its influence is all-pervading and all-powerful; more powerful at times than the most ironclad order which the commander-in-chief may issue.

If the President of the United States, himself, in his capacity as commander-in-chief of the navy, should issue the most stringent order he could indite commanding the fleet to be cheerful, to carry on its maneuvers, drills, and daily routine in a happy, cheerful, joyous manner and the spirit of the fleet said "No!" all the deliberate and willing effort which the President's order would unquestionably call forth would be futile until the opposition of Old Man Fleet Spirit had been overcome. Once

overcome, however, he would be the most powerful friend and ally possibly obtainable. He would read the fullest meaning into our commander-in-chief's order; he would illuminate it; he would show us new ways of complying with it; he would inspire us to try to outdo each other in putting it into effect. And on his part the commander-in-chief of the fleet would find his work vastly simplified for he would feel that to issue his orders would be to have them carried out gladly, sympathetically, and completely.

Nowadays our old friend fleet spirit is more commonly called morale or fleet morale. Sticklers may claim that they are not synonymous but, to all intents and purposes and with the possible exception of some very delicate distinctions with which we are not concerned, they convey the same meaning.

A healthy fleet spirit—or morale, if you will—is the outgrowth of contentment brought about by the resultant effect of many and various forces. Its origin and source must be outside of and higher than the fleet itself. The writer has no intention of attempting to dissect and classify its many factors. It is sufficient merely to point out that the final development of a real, live, active, inspiring fleet spirit, is of slow growth; that it is of very complex structure toward which a thousand and one things contribute; that it is not amenable to hot-house methods of cultivation; that it can be killed or injured by the kindness of its best wishers through over-attention, and that it thrives best in an atmosphere which provides for a slow but steady, progressive, normal growth.

Fundamentally it is rooted in the feeling and attitude of the whole nation toward the navy as sensed by the fleet in what it sees, hears and feels. It is affected by an *entente cordiale*, or absence of it, between Congress and the Navy Department. It is fostered by a wise and consistent policy inaugurated and carried on by the Navy Department and from these principal sources it has countless ramifications which reach down to the things which affect the mental, moral and physical welfare of the individual sailor-man.

We who cannot analyze it from the viewpoint of psychology have at least observed some of the causes and effects of fleet spirit. We have observed, for example, that different fleets or

squadrons have different characters, no less than different ships; that one organization may be indifferent, uninspired, lacking that indefinable something which might unify it and make it a living thing instead of a mere collection of ships. We have observed other organizations in which the existence of a living spirit was shown in a thousand ways. Something about the ships seems to breathe it as they steam into the harbor and let go together; the smile on the face of the bow man shows it when one of the newly arrived captains comes alongside to pay his call; the rapid disappearance of the coal or stores from the lighters proclaims it; the faces, the conversations, the dress, the bearing, the alert, confident manner of the officers and liberty parties on shore speak of the existence of some controlling, unifying, compelling community of interest which seems to animate every member of the organization. It is the spirit of the fleet.

Such a spirit is not the product of this thing or of that. It is not the result of circular letters, free moving pictures, prophylaxis and ice cream on Sundays. A discordant, unhappy family cannot be made contented and happy by the purchase of a player-piano, an automobile and a radio set. These things have their value when applied at the right time and in the proper proportions; they also have very definite limitations.

The fleet, spiritually, is a family. Its spirit—atmosphere, tone—is the result of contentment brought about by mutual acquaintance, identity of interests and of experiences; by understanding which comes only by sharing together hardships, good times and bad, work, play and danger; by "sticking it out" together; by the mutual sympathy which is born of intimate, continued, personal acquaintance. Above all, the tie that binds is acquaintance and all that it promotes and fosters. Time and the opportunity for developing the family tradition are essential to the growth of the fleet spirit. Long cruises in company, common adventures in foreign lands, mutual interests in the little daily events at home or abroad, at sea or in port, on board ship and ashore; working, playing, rejoicing and suffering together—these are the means by which a fleet can find its own soul and become a fleet in reality. These are the means by which such a fleet spirit can be developed that the least desires and commands of its commander-in-chief are inspirations to excel and to outdo each other in accomplishing them.

The two detachments of a divided fleet may independently develop an excellent spirit, each complete and satisfactory unto itself and each inevitably with a character of its own—but they will not blend; they cannot blend. They are born of different experiences, different sympathies, different leadership, different standards of discipline, different atmospheres. In time they may partly blend and partly determine the character of a new spirit. But that is the vital point: *time*. Time is necessary—not weeks, not months—but years; not during a period of strained relations—not after a declaration of war—but in the years of peace—*now*.

Are we concentrated on the development of a fleet spirit?

VII

Training:

More or less loosely, perhaps, and incompletely, the mission of the fleet in time of peace may be stated as preparation for action in time of war. It is certain that a war with any first-class power would require the concentration of our divided fleet. Our organization is based on this fundamental assumption. We have a Pacific Fleet organization and an Atlantic Fleet organization for time of peace and, on paper, a combined organization for time of war. Once a year they meet for combined maneuvers. They failed to meet last year for lack of money with which to buy fuel. Their division was a peace time strategical weakness no less than it would have been before the existence of the canal. Had the fleet been united, tactical maneuvers undoubtedly would have been arranged for; possibly strategical maneuvers also. One year was lost in the training of the fleet *as a fleet*. Last year the cause was lack of money; what will it be next year?

The training of a great fleet to develop its maximum striking power in battle is the greatest task in organization, control, and concentrated timely effort, that man has ever set for himself. Far more than in war on land does it call for skill and resourcefulness in the commander-in-chief; far more does it call for initiative, intuition, and instant readiness on the part of subordinates to meet the ever changing situations; far less is it susceptible of detailed planning in advance. A general engagement on land may last for days, for weeks; the first five minutes of an action between fleets may decide the history of a people.

The measure of the difficulty of training this vast array of men and materials is the measure of the necessity for each cog, large and small, in the whole organization to do its part at the right time, in the right place, in the right way.

All our experience teaches us that nothing but unremitting drill and rehearsals will enable us to approximate the maximum development of the men and materials we control. It has long been held as a cardinal principle of gunnery training in the United States navy that drill conditions should simulate as closely as possible conditions apt to be met in time of battle. And yet we divide our fleet for training!

The problem of developing the maximum power of a fleet in the face of the enemy is a problem of fleet tactical control. It is a complex problem requiring control over the movements, distribution, development of the offensive power and of the special objectives of battleships, scouts, destroyers, submarines, aircraft, mine layers and possibly other special types. It is a fleet control problem, very similar in nature to the ship control and fire control of a ship, but vastly more complicated. We have learned that the complications of fire control within a single ship are such that almost daily drill is necessary to hold the organization up to the mark.

How do we hope to master the far more intricate problem of fleet control with a fleet divided some eleven months out of the year?

Not only does our general naval training and in particular our target practice training teach us the value, the absolute necessity of team work, of drilling together, of simulating actual conditions, but everything in our school life, in commercial life and in our whole modern, national existence points in the same direction. "Team work" is the foundation of all training which requires the simultaneous play of many forces. True of sports, true of industry, true of business, it is a thousand times true of the delicate, intricate, timely interplay required of the many forces which make up a fleet.

The analogy of the team work of the football team, although well worn, is just as true today as ever. Let us suppose that Yale University and the University of California should agree to develop a single football team, Yale furnishing one side of

the line and two backs and California furnishing the rest of the line and the other two backs, each division of the team having its own captain. If we suppose that their training is independent, except for two or three days a month when they meet for combined training, and that the captain of the Yale contingent is captain of the combined team on such occasions, we shall very closely reproduce the essentials of the present fleet distribution. Exchanges of correspondence and of signals, of plans of attack and defense, of ideas, will be of little value when the opening of the season comes. The captain from Yale, no matter how complete his knowledge of the tactics and strategy of football, will not be accustomed to applying them to such a large team. The straight line bucking may go fairly well but the forward passes and shifts which require the two sides of the line to work together in nice precision are apt to result in fumbles and ragged work. In fact, as a team, it wouldn't amount to much although the individual players might be excellent. A first-class high school team might beat it.

Is the division of the fleet so very different in respect to its training? Will a brief annual mobilization for combined maneuvers replace the habit of acting together as a fleet, of thinking in terms of a fleet? Can we, in one month out of each year, develop in a fleet that team work which we find requires several days a week the year round to develop in a single ship? *Are we concentrated on training?*

VIII

Other Considerations:

Now there are other considerations than leadership, loyalty, discipline, fleet spirit, and training. Are the Eastern navy yards adequate for the maintenance of the combined fleet? Are the West Coast navy yards adequate for its maintenance? What about the political opposition which would develop against moving the remainder of the active fleet to the Pacific or returning the Pacific fleet to the Atlantic? Would not such action by the Navy Department alienate some of the navy's most powerful political friends? Why become alarmed at the idea of separated detachments joining up on the eve of battle? Is not the history of naval warfare full of such instances? Does not that great master of warfare, Napoleon, say: "The art of war consists in

dissemination of force in order to subsist, with due regard to concentration in order to fight"? Is not the division of the fleet between the two seas a dissemination in order to subsist and does not the canal provide for concentration in order to fight?

To answer these questions we have only to examine them in the clear light of the principles of concentration, "the A, B, C of naval strategy," of concentration applied in the spirit, and we shall find that the naval strategy of peace is not so different from that of war. We shall find that the objections to actual concentration in time of peace are of importance, well founded and well worthy of careful consideration but we shall find also that they are not vital and that they are not insuperable. We shall find that the considerations which have led to the division of the fleet are those of expediency. We shall find that the considerations which demand an undivided fleet are vital and fundamental and that they cannot be disregarded nor material arrangements substituted for them.

Napoleon's own definition of the art of war—"Dissemination of force in order to subsist, with due regard to concentration in order to fight,"—is obviously based on the assumption that the dissemination is *necessary*. There is no virtue in the separation of forces merely for the sake of separation. The separation is a means to an end; the end is subsistence, maintenance. Separation is a necessary evil to be accepted only when the end justifies the means; when subsistence cannot be provided except by dissemination. A partial dispersion in time of war may be necessary for the purpose of masking a proposed stroke or for observing the several detachments of a divided enemy or for affording the means of making a ready concentration at one of several points over a given area. These are situations incident to war. In time of peace the mission of the fleet is preparation for war, anticipation of war. The deployment of the fleet in time of peace should be that which most readily facilitates accomplishment of the mission. If the division of the fleet in time of peace is not necessary for purposes of maintenance, upon what legitimate grounds from the viewpoint of strategy can it be defended?

Let us briefly examine the maintenance facilities of the Atlantic and Pacific coasts and attempt to determine whether a division of the fleet is necessary for purposes of maintenance.

It is pertinent to point out first that the United States fleet, built and building, at the time of the decision to divide it between the two seas comprised twenty-nine dreadnaughts and six battle cruisers or a total of thirty-five first-class ships, not including eighteen pre-dreadnaughts. Since this decision was made the premises upon which it was based have entirely changed. At the Conference on the Limitation of Armaments we gave up this great fleet and restricted ourselves to eighteen first-class ships for the next ten years. Our total fleet of first-class ships therefore is now and for ten years will be less than half the number contemplated at the time of the division of the fleet.

With regard to the adequacy of the Eastern navy yards for maintaining this fleet there can be no question and no need for argument or for laboring the point in detail. The repair and docking facilities of the navy yards of Portsmouth, N. H., Boston, New York, Philadelphia, Norfolk, and Charleston will be more than sufficient after the scrapping of the old battleships shall have been accomplished. Their effective facilities for the maintenance of the active fleet in commission could be further increased, if necessary, by transferring destroyers and other vessels in ordinary, in reserve or out of commission to the Pacific navy yards.

On the Pacific coast the situation is different. Would the material condition of the fleet in time of peace suffer through lack of facilities to maintain it under the present conditions if concentrated on the Pacific coast? One of the greatest lessons of the World War was the discovery of our own capacity for taking care of material when the opportunity for active service furnished the incentive. Ships which had been the best friends of the navy yards but strangers to the sea went across and held their own in active service for over a year without mishap. We do not need another war to be able to duplicate this; we know what we can do; we must and will continue to do it. With this recently gained knowledge and experience and the wonderful development of the repair ship in recent years we are much less dependent upon navy yards than in former years.

Repair ships and all the initiative, enthusiasm and technical knowledge in the world, however, cannot provide dry-docks. How do we stand in this respect on the Pacific coast? For war

purposes they are unquestionably inadequate. For peace purposes they are not all they should be but, in the opinion of the writer, they are sufficient to maintain the "Treaty Navy" on a peace footing if continuous docking schedules are maintained and their utmost capacity utilized.

The navy owns but one dry-dock on the west coast of the United States of sufficient capacity to dock any of the eighteen battleships. This dock is at Bremerton. At Hunter's Point in San Francisco Bay is a larger dry-dock belonging to the Bethlehem Steel Company which will take our largest battleships and the two battle cruisers which are to be converted to airplane carriers. Arrangements have been made by the Navy Department for the use of this dock. At Pearl Harbor is an immense dock which also will take all battleships and the airplane carriers. At Balboa is a fourth dry-dock larger than any of the others.

Bremerton, San Francisco, Pearl Harbor, and Balboa;—true, the distances are great; docking schedules will involve more difficulty than would be necessary with more adequate facilities, but the cruising involved, the acquaintance gained with these strategically important positions and their resources, the experience gained by the shore stations themselves in docking and repairing big ships—all these come under the head of preparation and training for war.

The two dry-docks at Mare Island and the remaining dock at Bremerton are available for cruisers, vessels of the train and all vessels smaller than battleships. In addition to these there is an enormous combination building way and shallow dry-dock at Bremerton with twenty feet of water over the sill in which several entire squadrons of destroyers or submarines could be docked at one time or large numbers of mine layers, light cruisers and other medium draught vessels.

Unquestionably the shore facilities of the Pacific coast are meager; beyond all doubt San Francisco Bay, the strategical center, should shelter a naval base of the first order, capable of docking and repairing the largest ships. But—for the maintenance of the fleet in time of peace it is not outside the bounds of conservatism to say that the development of the full capacities of the existing shore establishments of the Pacific coast together with the assignment to the fleet of all repair vessels will provide

for the maintenance of the entire active fleet in full commission without lowering its standard of material condition. This presupposes that all manufacturing and shipbuilding work now done in the western yards be assigned to those of the Atlantic coast, that all vessels out of commission, in ordinary or in reserve be maintained at eastern navy yards and that the full capacity of the west coast yards be devoted to repairs, maintenance and supply—the true functions of navy yards.

The concentration of the active fleet on either coast would undoubtedly be accompanied by a great outcry from the states of the opposite coast. This would be partly political in origin and partly due to an honest but uninstructed belief by a great many that their coast or their states would be left unprotected. The truth of the matter is that a concentrated fleet in the Pacific is a better protection for the Atlantic states than half a fleet on either coast. It is equally true that a fleet concentrated in the Atlantic is a better protection for the Pacific states than a fleet divided between the two seas. We may not be able to overcome political opposition to reuniting the fleet. We may alienate powerful political friends of the navy. We may temporarily sacrifice valuable Congressional support. But this much is certain: We cannot afford to sacrifice a vital principle for expediency. If division of the fleet vitiates the principle of strategical concentration; if continued division in time of peace weakens the strength of the fleet for battle, then we cannot afford to keep the friends who can be held only at the price of division. We must not forget that there are many states which do not lie on either coast but which are just as dependent upon the navy for protection as New York or California.

We have not created a Pacific fleet for the protection of the Pacific states and an Atlantic fleet for the protection of the Atlantic states but we have divided the one and only fleet which we own and which was built for the protection of the *United* States.

And yet the people of the nation firmly believe that by dividing the fleet we have added to the security of the country; that we are now protecting both coasts where formerly we protected but one. Are we of the navy beginning to believe this too?

We should not allow the fleet organization which assigns battleships to the battle force, the scouting force, and the control force to obscure the clear, essential fundamentals of concentration. Whatever assignment of some of our eighteen first-line ships to other forces than the battle force may be necessary for special purposes they yet remain members of the battle force in fact, and we may be sure that the commander-in-chief will look to a disposition which will permit every one of the eighteen to lie in the line when the day of battle comes.

Our present battleship distribution gives approximately two thirds to the Pacific and one third to the Atlantic. Is not the *two* thirds in the Pacific a partial concession to concentration in principle and is not the *one* third in the Atlantic a concession to other influences and a denial of concentration in fact? Is not the result a compromise rather than a strategic combination and are not military compromises usually disastrous?

Is not the "wall of steel round our ocean boundaries" in reality a weakening through attenuation? A marline-spike or a sash weight is a better weapon than an equal amount of metal drawn out into a long wire. Its force can be *concentrated.*

The division of the fleet as it now exists can be defended only upon the ground of the existence of the Panama Canal and the interior position which it gives us. It is our central position connecting our sea frontiers. We hope that it is impregnable. We were once told that Liege, Namur, and Antwerp were impregnable—and that was in the days before great bombing planes. Is not a division of the fleet on either side of and distant two thousand to three thousand miles from our connecting central position a standing invitation to an enemy to attack the Canal as the first step in an attempt to make the division permanent? Has any sure defense been developed against surprise attack by bombing planes?

Policy may require that the fleet be in the Atlantic at one time or in the Pacific at another but, insofar as the requirements of sound strategy are concerned, is it not the truth, the sum and substance of the whole matter, that it is immaterial whether the fleet be in the Atlantic or in the Pacific provided only that we keep it concentrated; a fleet in fact?

What of the period of strained relations, of days, weeks, perhaps months, which usually precedes a declaration of war? Would not the mobilization in our case be such an obvious, overt act that probably it could not be undertaken for fear that this hostile movement of the navy might precipitate the very war which, by a show of *concentrated* force, it might have prevented?

Are not the very names "Atlantic fleet" and "Pacific fleet" misleading? Can they do otherwise than lead the nation and perhaps ourselves to believe that we actually have two fleets? Have we in reality two fleets or have we two parts of one fleet?

Are not the essentials of the principle of concentration being violated today just as certainly, if not to the same extent, as they would have been by a similar division of the fleet before the building of the Canal?

"Like every sound principle, concentration must be held and applied in the spirit, not in the letter only; exercised with understanding, not merely literally."

"There is thus a concentration of mental and moral outlook, of resolution, as real as the physical concentration of disposable forces."

Are we applying the spirit of concentration? Have we, with our divided fleet, a concentration of mental and moral outlook? Have we concentration of purpose? Of effort?

Is the fleet strategically concentrated?

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EVERY OFFICER A COACH

By Walter Aamold, Physical Training and Athletics, U. S. Naval Academy

Dr. R. Tait McKenzie, in writing the history of athletics, came upon a witty little incident in Homer's *Odyssey* which with slight variations is very applicable to this article. It seems that Homer's Euryalis is a bombastic sort of fellow who having gathered five or six misfits together is drinking somewhere in a dockyard. Odysseus, just fresh from the sea, chances to be passing near by. Euryalis taunts Odysseus, whom he is unable to recognize, as a "master of sailors that are merchantmen," one with a memory for his freight and gore; in fact, he adds insult beyond endurance by declaring: "Thou seemest not a man of thy hands." Odysseus, stung by the taunts of the Phæacians, picks up a discus larger than a bunker plate and hurls it halfway to the horizon, putting Euryalis and his baker's dozen in a most apologetic and affable frame of mind. Such is the trend of this ancient story and it must be admitted in behalf of the good-natured Odysseus that after a man has spent a few weeks at sea bringing his ship to port through rather stubborn weather, he is in no mood to be looked upon as a man not of his hands; in fact, he is very apt to be feeling all hands and feet at the moment of challenge.

For some unaccountable reason there seems to be a universal belief that officers are somewhat apart from anything that pertains to physical performance. Despite history, the recent war, the 1920 Olympic Games, there are still murmurs of surprise in the grand stand when an officer is announced in the line-up of an athletic team in which mixed players are entered. At a recent Army-Marine football game played on a college campus the spectators on learning that several officers were to play halfway

expected to see them unpacked from boxes of excelsior and marked "handle with care." After the game had been on awhile the wonder was why they were not kept in iron cages! Considering that the average officer has played a good hard game of some sort while acquiring an education, why should there be such surprise if he keeps up his athletic spirit after graduation? Mainly, perhaps, because it has not been the general practice and for the reason that tradition has not directly connected military dignity with participation in athletics, at least not since the days of the Greeks.

In recent years far-seeing officers in all branches of the military establishment have pointed out that caring for the personnel during recreation hours is only second in importance to training men for duty. In the study of morale in camp and on board ship the thought is that men must have a healthy outlet for their energies to offset their getting into mischief when left entirely on their own resources. With this idea in mind there has been developed a very complete organization to promote athletics and recreational interests of a healthy nature. Naturally the full burden of execution became part of the complex duty of the officers in direct control of personnel, which of course immediately brought about an ever-increasing demand for officers skilled as directors and coaches. From this new system it is very doubtful whether the average officer realizes to what extent athletic coaching has been developed in the service, and it is safe to say that he does not fully credit himself with his own latent ability as a coach. Not so long ago a memorandum was sent around to a group of officers with the request that those interested come forward and assist in coaching, or at least receive instructions in that direction. In most cases the answers indicated that the officers were more than willing to help along but stated that they had had no experience as players in the particular sport in question, or that their experience had been gained some years before and they feared that by now the conditions were greatly changed. In this respect it is to be remembered:

Some of America's leading coaches never as much as played one game in the sport they now handle with such marked success. Actual participation as a player is not a requirement for a coach.

Others stated that they knew little if anything about coaching,

yet perhaps they had drilled many a gun's crew—which performance has in it all the factors to be found in coaching an athletic team.

Coaching in its broadest aspects is a distinct form of spirited leadership governed by the leader's force of character. It has no discipline behind it except that established by respect, a willingness to follow, and the leader's ability to handle men to their best advantage. Does not the President coach his cabinet, or a captain of industry his directors? Indeed so! Coaching finds its way into all organizations founded on leadership and its fundamental principles most surely are not confined entirely to athletics. In nearly every case it is simply a question of a good leader taking off his cloak of authority and going in on his mettle, his energy, and his sense of fair play. It resembles nothing so much as common sense. If he's that kind of a man; if he can lead by sheer ability unassisted by outside discipline, then—he's a premier coach and his opponents will be up nights trying to fathom his methods of success.

Changing from military leadership to athletic coaching is much less abrupt than leaving duties on shipboard to direct a landing party. It is mostly a question of adaptability, and variety of service is but Hobson's choice in the service.

An officer capable of exercising command is, subject to a study of coaching problems, particularly qualified to serve as a successful coach.

The first problem facing a coach is the selection of material. In this the officer must have handy the same yard-stick that he has been using in making up the crew of a turret. The same group of nickle-steel men will be found, likewise the mediocre candidates out for a good time, as well as the tail-enders who just happen to be there, and a few "twilight sleepers" from which some unknown may be developed into a first-line man. Navy's famous old crew coach, "Dick" Glendon, has stated it something like this: The season opens with a plentiful supply of crucible material; then the boiling down begins and soon a decided division takes place—finally one day there is pure gold and slag. Upon the gold hammers the coach, moulding it into a dependable unit of known quantity and value. *It is the first aim, then, to get at the gold and mould it to one's liking!*

It may seem strange at first glance that the unit of modern-day athletic groups is not the team. The new unit is the squad—a homogeneous force composed of the first team with at least one runner-up for every position. The unit thus becomes the team with a strong reserve that can hit under all conditions and not be weakened by substitutions! It is a weapon sharpened to a deadly edge by competition within itself.

The tactical control of the team when in action is through an indoctrinated field general, the coach being barred by the rules. In every squad there should be at least three well-trained field generals, each equally capable of taking instant command. If there is such a thing as mental telepathy it should most certainly exist between the coach who sits on the side-lines and his field general directing the fray. If there is super-skill in the coach it should not be lost on the bench, but should be reflected in a modest measure on the field of play. A well-executed play is not a spasmodic outcropping in the midst of the game, it is but the natural result of patient training. The breaks go to the team having the greatest strength—the alibi is gratis to the defeated.

The next important feature in coaching is suppression. First of all resist the temptation to build a team around a star. It is a one-man affair, and at the best a star is but a flash against clever opponents. A recognized star promotes individual and temperamental play as contrasted with teamwork. To allow a would-be star the slightest advantage over others of the squad is to detract from all—work the squad as a unit favoring none. Perhaps if it is not one star troubling a coach it is a clique of some sort. Since there must be absolute unity of control—unity of action and unity of thought, when a coterie first shows itself—off with its head!

In brief, the spirit to be instilled in the squad is well expressed by Dr. McKenzie in his description of the Greek word *Aidos*: ". . . . for which the exact English equivalent is hard to find, but which is opposed to both insolence and servility, that, while it puts into a man's heart the thrill and joy of the fight, restrains him from using his strength like a brute or from cringing to a superior force; that wins for him honor and respect, in victory or defeat, instead of terror from the weak and contempt from the strong. It includes that scrupulous respect for personal honor and fair-

ness that would make a team elect to risk a probable defeat rather than win through the services of those who do not come within the spirit of a gentleman's agreement. It is that spirit of modesty and dignity that obeys the law, even if the decision seems unjust, instead of piercing the air with protestations."

Turning to policy of play the officer is still very much at home as a coach, for in all forms of competition the leading factors are offense and defense. For reasons unknown to man where offense and defense would seem equal the offense actually succeeds—perhaps on account of its accumulative features; sufficient to say a strong offense will be the ruling passion of a coach marked for the path of victory. In the offense there are elements of defense; in the defense there is little more than a time interval looking forward to an opportunity to take up or resume the offensive. However, the strategy of play must be well balanced, offering equal opportunities on either offense or defense. As to plan, there must be absolute simplicity. The details must be capable of being thoroughly understood and mastered by the unit as a whole and by each individual of the playing unit. Very often one sees plays fairly well executed by a team but not thoroughly understood by individuals making the play. In such cases the individual depends upon guidance from other players, and if there is a disruption of any sort, the play is quickly broken up. The greater the tactics, the simpler the execution. Complexity and confusion are old shipmates of failure. In every move of every play each man should have a part at full strength either for concentrated action or to decoy or divide opponent's force by strategy.

Contrary to popular belief coaches do not manufacture "shoestring" plays over night that are sure to win a game the following day, nor do they work out revolutionary plays with soda crackers while dining out. Their first worry is to find a solid, ground-gaining play with certain elements of stability, safety, form, and system. Such a play is very much on the order of T. N. T.—there may be explosives a great deal stronger, but because they either go too quickly or don't go at all, they are not depended upon to do the bulk of the work. This first fundamental play, then, is adopted, mastered, and finally worked into variations such as to the right or left or reversed. Following this a lighter

play is taken up as a threat, for there should always be a threat or two in a coach's bag of tricks; a feint in boxing, a bunt in baseball, and so on. As there is a time limit to training and preparation for an amateur sport, not many plays can be developed throughout a season. Few are needed—if there is a dash of genius!

To prevent any possibility of confusion and to allow for a logical development and modification of play it is essential that a coach reduce his strategy to writing and diagram before the opening of the season. This will give opportunity to discover errors and will allow a quicker development early in the season.

Conditioning a team to its highest point of power is as delicate an operation as tempering steel. A month of advance training is required during which time the vitality of the squad must never be carried below normal by over-practice. Unfortunately, this is too often the case. Training is the process of building up and conserving energy, the peak to be reached on the actual day of play, not the day before and then carried at par. The most disturbing factor in conditioning is change of diet and living conditions. Training does not mean a complete reversal of living conditions—not in the least, it is but the modification and regulation of living conditions of which the contestants are in rhythm. One would not train a Japanese runner on heavy meat —nor an American on rice. In life there is a certain well-defined rhythm similar in purpose to the balance wheel of a watch. It is there because it is the most efficient way Nature has of doing things. It swings so much this way, so much that way, always with a measured cadence that regulates the body and keeps it in tone. When training introduces new factors in the method of living the rhythm is disturbed and a new habit must be formed—a new balance established. Quite recently a coach sent his team overland for competition. On the way they came upon new fruit just coming into season. "Nothing like it for putting the boys in shape!" he declared. And it did—but the timing was wrong and the playing was therefore weak. Careful regulation results from even habit—and food above all must not be changed during a training period.

At one time throughout the service, with the exception of the Naval Academy, a large part of the coaching was done by ship's

cooks. This came about from several causes; first, the cooks were able to run an improvised training table out of hours for their particular protégé. In addition they had flexible watches and there was little athletic organization in their place. Under the régime of the old galley the original "ham-and-eggers" thrived in unholy numbers, but somehow, somewhere, the system was wrong, for none of their dandies seemed able to escape knock-outs in the ring or deck courts at the mast. Usually the candidates were blessed with ambidextrous stomachs but one-armed punches. They took up training for "kind treatment" and eating raw meat for temperament. A prolonged period of indigestion usually preceded a meet and a financial crash followed hard upon its heels, to say nothing of commissary complaints from the proletariat of the mess. Thus, by the abuses of training, the Navy soon got enough of this and a reaction set in, in the direction of welfare secretaries. Needless to say, athletics, particularly at training stations, took on a much more refined air—but still the punch was lacking! The trouble takes us back again to the selection of material. Under the new order of things the "ham-and-egger" was set aside, or rather dropped out, while the milder fellow who pulled a "strong oar in church" took up in his place. Between both extremes stood the solid material that makes up every ship's division. It was not until the division officer himself came out for coaching that the entire watch felt the appeal—it became reorganized as a ship's affair for the ship's honor with the result that "raw meat" and "postum" went by the board or around to all hands. Thus by placing coaching in the proper quarter the food question, selection, participation, and a host of other things became regulated to the present-day practice of "athletics for everybody" and the sweepers take the hindmost.

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U. S. NAVAL INSTITUTE, ANNAPOLIS, MD.

"THE JOB"

By Lieutenant Commander J. Ogden Hoffman, U. S. Navy

To solve the problem facing the navy of today calls for every effort, every suggestion that may be offered by all branches of the service—to call into consultation, as it were, diagnosticians in the diverse fields of naval activity. Before performing the "operation" the patient must be placed under observation, even under a microscope or an X-Ray and we wish our treatment to be in every way successful and not to conclude with the statement that it succeeded "except that the patient died."

The navy recruiting service forming, as it does, the bridge between the navy and civil life, is given a peculiar insight regarding many factors that escape the notice of the service afloat. Everyone comes to recruiting duty with a considerable amount of seagoing experience and he invariably arrives at the conclusion that his knowledge of the navy was not as complete as he imagined. He is placed face-to-face with something entirely new nearly every day in the week, and eventually realizes that the training he is undergoing is a most valuable and vital part of his naval education. He will go to sea richer in experience and with a better understanding of his part in the play and of the tremendous power he controls as a factor for good or evil.

Axioms, platitudes, and even written orders will not bear fruit unless the doctrines that they teach are personally applied and sink, away down deep, into the conscientiousness of the individual. Everyone evolves some sort of a creed by which he governs his conduct, but to put this creed into words is a difficult matter, and it is still more difficult to practise it. Let us, at the outset, and until we find something better, place before us two of the ideas of the greatest exponent of the genus "Tommy," which is closely allied to the species "Gob":

"If you can fill the unforgiving minute with sixty seconds' worth of distance run". . . .

"Will paint the thing as he sees it, for the God of the things as they are."

The first quotation may be well applied to the whole service, and the purpose of this article is to "paint the thing as he sees it," from the point of view of a navy recruiter.

Every seagoing officer views, instinctively, with distaste the recruit as he comes over the side. Even as the finished product of a training station he is exceedingly new at the game and we heave a sigh and expect a lot of sympathy if we get a squad or two of him in our division. We classify him as a "recruit," a "boot," and a lot of other titles, with the mental note that we are going to have a fine Roman holiday before he becomes a regular man-o'-war's-man. The feeling of grief starts with the officer-of-the-deck as he checks him over the side, is passed along from the divisional officer to the boatswain's mate, and extends down to the last seaman, who has progressed even so far as the stage where he knows that the most important thing in a lifeboat is the plug.

If the recruit is one of the "Black Gang," he seems to fare better than his peer on deck, possibly due to the fact that he is out of sight more of the time and rarely comes under the observation of the officer-of-the-deck except when he comes up to steal a breath of air, in his steaming clothes. He has his troubles, as well, but they are more easily solved by working in the restricted areas that breed fellowship.

Having decided that the recruit is a thorough nuisance let us look at the other side of the picture and decide just how much effort should be given toward turning him into a finished naval product, a credit to the service and himself and proud of his place in the scheme of things.

Contrary to the opinion prevailing in many circles, recruits do not grow on trees nor do they come to a recruiting station begging to be enlisted. With a few exceptions, each one represents days, weeks or even months of concentrated effort on the part of a recruiting salesman who draws, usually, the pay of a chief petty officer plus a subsistence allowance, for the express purpose of completing the sale. The exact cost of each recruit, prior to

the administration of the oath of allegiance, is not known, but it is believed to be in the neighborhood of one hundred dollars, figuring pay, allowances, overhead expenses, and transportation. He represents, therefore, in addition to the time and effort of a selected petty officer, the approximate value of a one hundred dollar bill taken from the treasury.

The recruiting service has done its utmost when it delivers the recruit to the training station or receiving ship, as the case may be, and it is believed perfectly fair to state that it has accomplished more than fifty per cent of the transition from civilian to sailor. To train a man, with all the tools at hand, is infinitely more simple than to pursuade that man to discard a suit of civilian clothes for one of navy-blue. The only ones really qualified to express an opinion on the relative size of the obstacles in the paths of these two tasks are those who have wrestled with both of them. The consensus of opinion would undoubtedly be that to train him is mere child's play compared with enlisting him.

All of this has very little to do with the matter in hand, except to be retained as a background. Every recruit should be considered in the nature of a psychological puzzle, and should not be cast into the discard after the first or even the fifteenth baffled attempt at solution. To discharge a man for inaptitude, as undesirable, or even with bad conduct is the work of only a few moments. To replace him is a different story and, to understand the comparison, let us stand on the sidelines for just a few moments and look at the enlistment of an average recruit, under average conditions, and when the opportunities of civil employment are about equal with those of enlistment in the navy.

The chief petty officer in charge of the recruiting sub-station at Saskatchewan hears, from a friend of his, that young Mike Jones was seen looking at a navy poster in Mulligan's pool parlor last Thursday night. The CPO immediately writes "Mike Jones-Mulligan's pool parlor" in the little book that is his inseparable companion, and starts on the trail with the combined finesse and nature of approach of a Sherlock Holmes or a Disraeli. He finally meets M. Jones, who is interested in the navy not at all, and, finding out where he lives, sends notice of the same to the main station for the mailing list, causing the said M. Jones to receive a flock of letters, carefully multigraphed and most of

them actually signed. In the meantime, our CPO runs against the stone wall of the Jones family who have raised their boy to be an enterprising road-mender. They cannot see the navy as a career through a pair of field-glasses, and Mrs. Jones, especially, impresses upon the CPO the importance of having her Mike at home every night, of getting the greater part of his pay envelope of fifteen dollars a week, and of having him around the house to do odd jobs, even though she admits that Mike, at fifty, will probably be what he is now, a road-mender or common laborer.

The CPO must now "sell" the navy to all the Jones family, individually and collectively, and he never gives up until Mike is on his way to the main station with an application and birth certificate, consent papers, or whatever else is required. To complete the sale has taken hard, unremitting work, and considerable initiative. As an investment, it should never be discounted in connection with the future treatment that the recruit receives.

There are, of course, cases where the enlistment is accomplished with very little expenditure of time or trouble, but the above case, appearing, perhaps, humorous and overdrawn, is as true to life as can be painted in a few words. Just as there are easy "sales" of the navy, so are there cases of newly enlisted men who respond to discipline like veterans. Both of these are the exception, however, and every case, easy or hard, should demand detailed examination and weighing on its merits. The recruiter never stops until he has accomplished the desired object, and, in all justice, his peer at sea should, at least, give the matter a proportionate amount of thought, and never give up until the case is proved to be absolutely hopeless. As a matter of pure business economy and conservation of material and energy for the service as a whole, coordinated effort should be obligatory, not merely optional.

Before passing to the discussion of actual methods for solution of the great problem that faces the navy, let us remember that the officer and man on recruiting duty have a much better opportunity for observing the workings of the navy afloat, in its relation to the American home, than have the responsible officer and petty officer on board ship. A recruiting station comes as near to the position of umpire, in but not part of the navy, as is possible for people wearing the same uniform. It looks at ships, at life on board those ships and at training stations as at a play

viewed from an orchestra seat. All the little details of daily life, the "sets and acts" are under the pitiless glare of the footlights of public criticism, brought home to the recruiting station every-day in the week by the relatives and friends of men in the service and, often, by the men themselves. A man will often tell a recruiting officer many things that he will not disclose to an officer on his ship, even the chaplain, and the man's mother will not hesitate to express her opinion in language that is often exceedingly plain and free from verbal camouflage.

It is not desired to give the impression that what is said is always in the nature of adverse criticism, because it is quite often the reverse. In every story, however, there is a modicum of truth, and it is the recruiting officer's business, far the greater part of his business, to analyze these personal situations. To the casual observer, his mission is, solely, to keep pace with the needs of the naval establishment, to display a blue banner, and recruit men in whatever quantity they are required. As a matter of fact, the business of enlistments takes only a small part of his time, the remainder being devoted to explaining the ramifications of the navy to the layman in need of professional advice and assistance. It is the recruiter's business and duty to answer all questions pertaining to naval procedure, much of which is, to the average civilian, like so much free Greek.

The recruiting service does not, as is often thought, deal in parables in making one of its "sales." Every recruiting agent, in conducting his operations is, in so many words, asking the candidate to cast off his civilian raiment and, after donning the uniform, to strive after a number of years to reach the plane of culture, training and prestige enjoyed by the recruiter. To the honor of the service, be it said that the men on this duty represent the highest type the navy has to offer, and when they follow this line of attack with their potential recruits, it is no empty boast. They mean what they say, they believe in the service that has made them what they are, and these thoughts and convictions cause them to hold their heads higher, throw back their shoulders and look the world straight in the eye. Their methods usually succeed unless, inadvertently, the applicant is subjected to adverse influences before he has finally made up his mind. It has happened on several occasions that an applicant, on his way home,

shall we say, to obtain his father's consent, encounters a man on leave of absence from a ship or training station, and asks him whether or not the information and outline of prospects received from the recruiting agent are correct. Many an enlistment has been nipped in the bud by just such a conversation, rendering valueless days or weeks of effort. The man who is considering the navy as a career will, nearly every time, place more faith in what he hears from a youngster like himself than on what is told him from a man of long service. It is pretty rough on the recruiter to be told by his erstwhile candidate that a blue jacket said to him: "I have only a year and a butt to do and, believe me, when that is through, so am I." All the argument in the world will not overthrow the impression that has been made on that young man's mind, and to say that it is "unfair" is putting it mildly. It is not only unfair but unnecessary, as well, and represents a state of mind that can and should be altered if the service is to get on its feet and stay there.

There is only one way to do it and that is to *pitch in and do it*, just as *"Go get 'em"* has been made the watchword of the recruiting service, without any excuses or alibis. The process must start from the very moment the recruit puts on his first suit of uniform and must be continued until a board of officers has definitely and finally decided that he is absolutely hopeless. The navy as a pictorial has been sold to him, or he would not be in uniform. The *real* navy must now be sold to him, every step of the way, with gradually increased complexity, just as though he were being mentally rather than psychically educated. Through him, the navy must be sold to his family, as a bitter and heartbroken letter from a home, hundreds of miles away, will more than counter-balance months of training. The man on board ship or at station who receives no mail is very much the exception. For nearly every one of them there is some influence, some tie that connects him with the hearth or home, and this tie *must* be made a help and a goad rather than a definite hindrance.

It is quite true that the primary object of any navy is preparedness for battle, but it is simply useless to strive for a record at target practice, speed trials, athletics or anything else, before a team has been developed. There is only one way to develop a team, and that is for the members of it to get their heads together

and to be actuated by some common purpose. The story of how the navy was built up in the last few months of the recruiting drive following the great war is a good example of what can be accomplished by concerted effort and the example is well worthy of emulation.

As the "Team-Unit" we will take the division on board ship and the divisional officer as the captain of that team. We can go up and down the scale in organization and apply the same basic principles to each rung in the ladder, each link in the chain, but the division will serve as an example. The captain of this team must learn to know the men under him as he knows the letters that spell his own name. They must come before his personal enjoyment, his leisure, his own inclinations and before everything else except his loyalty.

He must study their problems and help in their solution with the full benefit of the experience that has been given him by his rank and the superior opportunity of education. Until he rises from the status of divisional officer to head of department, the men, the flesh and blood, of his division must be constantly in his thoughts.

It is very easy to consider a large body of men from an impersonal point of view, and hard to remember that every man is an individual, a human problem, with his likes, dislikes, personal troubles and responsibilites. It is the divisional officer's great privilege, if he only will, to hold a body of American fighting men in the hollow of his hand, and, just as he must know every one of his men, so must the knowledge be mutual. To the officer belongs the initial breaking of the shell of mutual unconcern which often leads to distrust and, although the original advance may be repulsed, tact and a plain understanding of human nature will invariably succeed in the long run. The divisional officer must always be in the minds of his men, not as a figure-head, not as the man "higher up" whom they must evade if they wish to escape punishment, but as the power who will fight for them or fight with them as the case demands, and who is, invariably, generous and just.

To illustrate the exact opposite of what should be accomplished, there may be cited the case of an enlisted man, approaching the recruiting officer, as many of them do, for transportation back to

his ship. In spite of the fact that he had been on that ship for several months, he did not know the name of his divisional officer —*did not even know his name!* Could this man be blamed for a breach of discipline and would the plea of ignorance carry any weight with a summary court-martial?

The problem facing the navy today differs from any problem that has faced it prior to the Great War. Before the day of great expansion, when the navy grew, almost over night, like an inflated balloon, on every ship there was a large percentage of men with several years' service, at least, who could indoctrinate the recruit with the ways of the service, whether or not the divisional officer felt so inclined. Then came the war, then collapse of the balloon, to be followed by a repetition of the rapid growth and a renewal of the cycle.

We are certainly under some obligation to these thousands of new men who enlisted in perfectly good faith and whose apparent failure is due to ninety per cent ignorance to ten per cent inaptitude and undesirability. The status and duties of a divisional officer are unchanged but he must enter into those duties with his whole soul and not half-heartedly nor as an unpleasant phase of modern development. What was necessary and advisable to a lesser degree is now absolutely mandatory.

If the proper spirit exists at the head of the division it will be reflected throughout and the boatswain's mates and subordinate petty officers can be made of invaluable assistance, but minor in responsibility to their chief. The organization of the squad system is a fine thing just so long as the squad leader realizes that the issue of orders is only a small part of his duties toward that squad, but neither he nor the divisional officer will have carried out the spirit of the code until they get to really know, individually, the man inside the uniform. The spirit of the regulations stands a great deal higher up the scale than the letter of them, just as the man who can deduce a formula will outdistance the one who abides by thumb rules.

At the very foundation of our structure lies discipline and until the recruit knows and understands it for what it is, nothing further can be done with him, in the navy, at least. To the average man in civil life, discipline consists, entirely, of severe regulations that make the wearing of the uniform a burden, a

system from which the civilian is fortunately exempt. It embodies a lot of bugbears like saluting, having to keep in certain places, wearing clothes a certain way, being allowed to do this and forbidden to do that, not for any particular reason but just because the Blue Book "says so." This is the frame of mind of the average man enlisting for the first time, and he leaves the recruiting station with the idea, in spite of what has been told him by the recruiting petty officer, that he will have a good time in the navy and make a success of it, only if he succeeds in dodging around, in and out and among the rules and regulations.

His naval education will not start until he knows, really *knows*, that "discipline comprises a code designed so that a number of men may live together and, if necessary, die together, in a confined space, and *without getting in each other's way.*" This definition is not original but it is believed to explain the matter in the fewest possible words and, when it is understood, will shed new light on the subject, not only to recruits but to everyone in the service. For example, the man who is an hour over liberty and is punished for it, will realize that he is punished not for the fact of one hour more or less, but because he is a mess-cook, and his delay in returning to the ship has made twenty men wait for their breakfast. No matter what his duties, he has his own particular place to fill, and his bit to do and the doctrine of "live and let live" is the basis of all discipline.

Men cannot be taught these things by orders posted on the bulletin board or even published at general muster. They must have it explained to them, personally, by someone, just as ten minutes of good sales-talk is worth several hundred posters, in advertising value. In the first place, official correspondence and written orders are in the nature of third or fourth grade studies. We cannot give them to students in the primary school and expect them to be understood as they would be by graduates of the War College. The best disciplinarian is always the one who assigns the least punishments. Why? Because his men know what they have to do and what is expected of them, without being punished.

The royal road to learning is laid, as a preliminary, in the old "A to Z" of General Order Number 63—the "things that every man on the ship should know." Incidentally, he should know

them before he presents himself for examination for advancement in rating when, as a matter of fact, the majority of men hear of them for the first time. He should know these things and a lot more, so that his initial promotion requires no additional study. Every letter of the alphabet must be "sold" to him, one at a time—not merely "told" to him. There is a vast difference and many a slip between those two words, as any salesman knows, as every recruiting agent has learned by hard sledding and poor results when he starts on this duty with the idea that there is "nothing to it."

Having done our best to teach him the rudiments of discipline and the things that every sailor should know, we, the officers and experienced, enlisted men of the navy may hope to see improvement in the raw material in our charge, and not before then. It must be impressed upon every man that the navy is similar to any other concern employing large numbers of men in that the individual gets out of it exactly what he puts in, no more no less. It will pay him dividends only if he makes the initial deposits and, whether or not he will be called upon to sell it to anyone else, he must start by selling it to himself, assisted and directed by his superiors. After selling it to himself, he must sell it to his family, and, for this reason, the "family" of every man in the division forms a vital link in the chain between the divisional officer and the man, and between the navy and the American people. To the majority of officers, the enlisted man's family exists only in the abstract, sometimes not even in that state. They believe that the family affairs of the crew devolve upon the chaplain, only, for assistance and that they are none of their business. In this, they are believed to be absolutely wrong, as evidenced by numerous cases where efficiency has been evolved from inefficiency, through the co-operation and assistance of those at home.

The causes of dissatisfaction, as witnessed by the recruiting service, and brought home by an infinity of concrete examples, may be divided among the following general headings:

(a) Absence over liberty.
(b) Allotments.
(c) Uncertainty.

(a) *Absence over liberty:*

The above, which is the fore-runner of desertion, brings more enlisted visitors to the recruiting station than does any other single motive. Every man, presenting himself and requesting transportation back to his ship is carefully questioned in an effort to diagnose his case and determine the underlying causes. In nine cases out of ten, the trouble is financial—the man has not sufficient funds to return and, in the majority of cases, he did not have the necessary funds when he left his ship. On the leave papers issued by many ships and stations, and presented by men as evidence of their status, there has appeared a printed notice to the effect that the bearer must provide himself with the necessary return transportation and that he is forbidden to apply at a recruiting station for the same. In nearly all cases where men have such a paper in their possession, they have not read the above statement and did not know that it was so noted. When given their permission to go on furlough, they simply put it in their pocket and headed for the nearest railroad station, without reading what was said on it. The college graduate, or the commissioned officer of fifteen years service would have read his orders from top to bottom, undoubtedly, but not the man who is new to the navy, or even the man who has been in the navy several years. It does not require a very deep student of psychology to tell whether or not a man is telling the truth, and the facts stand, that the majority of men going on leave are far from fully aware of their obligations. It is easy enough to say that they should know, or that the order was read out at "Quarters" or that it was posted on the bulletin board, but the fact remains that they did NOT know about it, all of which is merely a very poor alibi for the responsible officer. The divisional officer or the squad leader, either one, should have seen, with his own eyes, that the man had an order for return transportation in his possession, before he left the ship. If this were carried out, it is believed that absence over liberty would be relegated to the past, except in a few isolated cases, where the excuses were perfectly legimate.

To say that absence over liberty invariably leads to desertion would be a gross exaggeration, but the statement that over ninety per cent of deserters descend to that status as the result of absence over liberty comes very near the truth. A man goes home, or

elsewhere, on leave, spends the money that he brought with him, cannot find or is afraid to go to a Recruiting Station, and we have all the elements of a case of desertion. He may have had every intention of going back to his ship on time, but days of absence over leave pile up very easily and, the first thing he knows, a reward of fifty dollars is being offered for his return.

Occasionally, men deliberately desert, but such cases are very few and far between. We may say that all men in the navy should know that they are supposed to get back on time, that they will be declared as deserters if they absent themselves ten days and that we cannot be expected to nurse them like a lot of school children. All of this is very true, but the fact remains that there are thousands of deserters at large and that, to stamp out the evil, we must remove the cause. It is simply a matter of indoctrination and must be driven home by every officer and petty officer who has men in his charge. The apprehension of deserters is fraught with so many difficulties that the greater part of them flaunt their desertion openly, bring an enormous amount of discredit upon the naval service and uniform and can do more harm in a few minutes than can be counteracted by several months of recruiting activity and salesmanship.

(b) *Allotments:*

Nearly every man in the navy has, prior to his entry into the service, contributed to a greater or less extent to the support of a family. The majority of recruits, before enlisting, faithfully promise their father, mother, or sister, as the case may be, to make an allotment in his or her favor. Many of them promptly forget this promise with their first suit of uniform and the navy, and not the man, himself, is usually held to blame for the state of affairs that ensues. The parent or relative involved goes to the nearest recruiting station for advice and assistance and, in many cases, writes to the Bureau of Navigation requesting that the man be discharged. If this is not done, the man receives a number of depressing letters from home that, at the very least, cannot help but impair his efficiency. He may like the service, be doing splendidly, and yet will be driven to requesting his discharge, in order to return to his home. He will give up the substance to pursue the shadow of possible employment in civil life, the navy

loses on him, absolutely, as an investment and, in many cases, he is no better off when he does get home to find the promised job given to someone else, or the concern for which he has been working closed down indefinitely. If this man had made an immediate allotment, the regular contribution received by his family would have satisfied them and the man would render value received in return for the expenditure of time and money in his training.

The recruiting service has the opportunity of following such cases from start to finish as the Bureau of Navigation directs an investigation following every request for discharge. Many men, particularly when they are young, enlist without obtaining the consent or even condonement of their parents, and the navy will never be popular with its owners, the American people, until the families of its personnel help and not hinder them. To make the navy "popular" means that every man in the navy should be an object of envy to his civilian brother, and not a subject for ridicule or amusement. Thousands of cases appear where the navy, in the abstract, is approved by a mother or father, but neither of them think of the navy in the concrete with anything but distaste. They are sorry that their son enlisted instead of being proud and happy that he is being given such a wonderful chance for improvement and self-betterment. If they have this impression when they are not, in any way, dependent upon their son for support, what must it be when his enlistment means greatly increased hardship?

The family, as an obligation, must come within the horizon of the divisional officer. The matter of allotments concerns many people beside the supply officer and the man concerned, and should be on record for every man, in every division book on board ship. The divisional officer should make it his business to be acquainted with the family affairs of every man in his division and to know just what relation the man bears to his family, as a wage-earner and a contributor to its support.

(c) *Uncertainty:*

A large part of the preliminary indoctrination of a recruit should be concerned with basic facts about the navy and about himself as a member of its personnel. He should know "where he stands" in all matters that concern him, and there should be

built up a systematic and lasting foundation for his future. The time is here when men should consider, carefully, the benefits that they used to receive thoughtlessly, and weigh them against comparative benefits that they would receive anywhere else, in any other profession. It is all part of the game of salesmanship, and they cannot hope for advancement, or to be in the least qualified for it until they know all about the concern for which they are working.

A little knowledge is more dangerous than almost anything in the world and it is the distinct responsibility and privilege of the divisional officer to substitute facts for fancy with every man in his division.

The following suggestions are offered:

(1) A card index for every division in which will be found complete information about every man, including a transcript of his current enlistment record, the members, ages and residence of his family and a rough log of his progress.

(2) Two (2) hours, five (5) days a week for divisional instruction. Half of the period to be spent by squad leaders with their squads, and the other half by the divisional officers with their respective divisions.

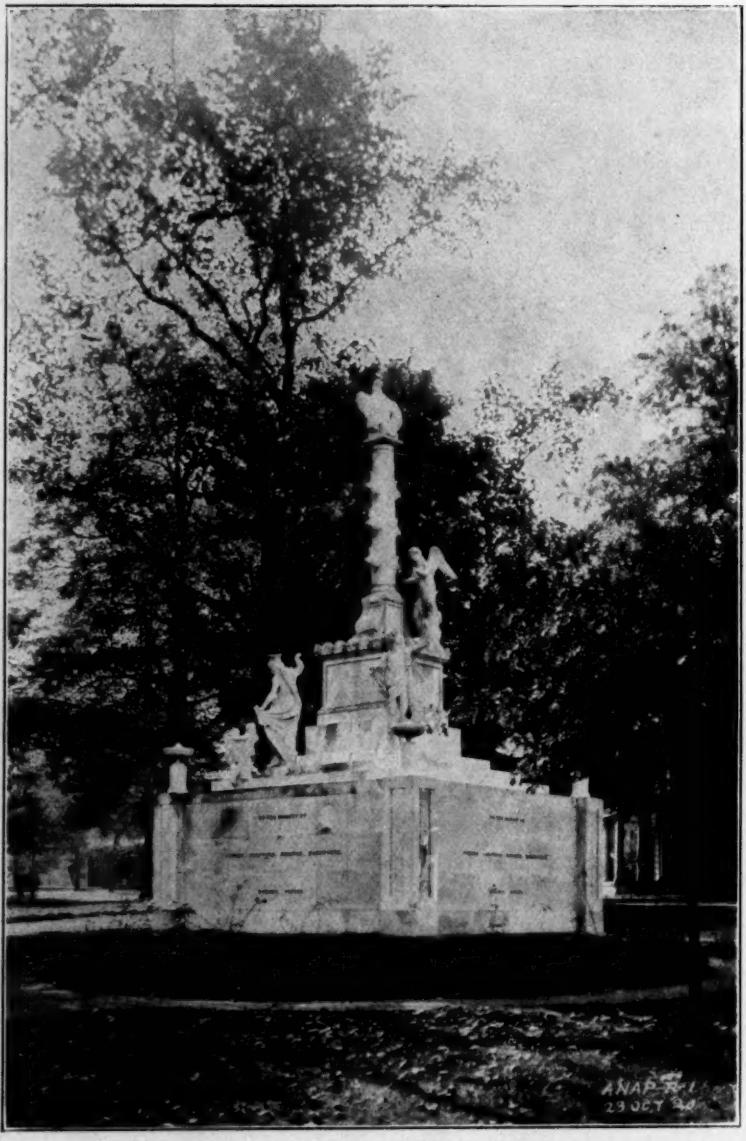
(3) All divisional officers to be in their rooms one (1) hour a day, at a specified time, to answer personal questions, investigate special cases or to confer with petty officers, as they may elect.

(4) A Board on every ship, composed for the purpose of investigating the cases of all men reported as undesirable or inapt. No man to be recommended for discharge of this character except by sentence of the Board which will have brought before it certified statements by officers and petty officers concerned, testifying to concrete examples of undesirability or inaptitude.

THE JOB

The job before the navy does not concern a few individuals elected for its solution, but is the personal business of every officer and man in uniform.

The "job" will have been completed when any sailor can meet any civilian on his own grounds and demonstrate to him and prove that the navy is the best investment in the world. His answer will not be "I have only a year and a butt to do and, believe me, when that is through, so am I." He will say, "There is nothing like it, the sooner you sign up the better and I can *prove* it."



THE TRIPOLI MONUMENT AS IT STANDS TODAY IN THE NAVAL ACADEMY GROUNDS AT ANNAPOLIS, MD.

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U. S. NAVAL INSTITUTE, ANNAPOLIS, MD.

THE TRIPOLI MONUMENT

By Captain C. Q. Wright, Ch-C, U. S. Navy, Retired

Recent events along the North African shores may serve to recall our own little war in those parts, and to arouse renewed interest in the unique monument erected by our naval officers as a labor of love and token of loyalty to brave shipmates lost in that brilliant struggle.

Naming the Monument

Until removed to Annapolis, it was known as the "Navy or Naval Monument," as was also the Peace Monument in Washington, for many years—the latter also having been erected by navy people, as a naval and marine memorial. Both originated by the Porters—father and son—Commodore David Porter fathered the movement to erect the Tripoli Monument, and Admiral David Dixon Porter carried through the project of building the Peace Monument, as to which it may be of interest to state, in passing, that, as Congress gave the money for some of its statuary as well as the site for its erection, they also assumed to name it or, rather, to restore its name, and, so, instead of Navy Monument, called it officially, the Monument of Peace. However, it is generally known today as the "Peace Monument." Although it is one of the most beautiful and prominent in that much monumented city, a recent description of it by an antiquarian Congressman, in a learned lecture on the monuments there, says of the date of its dedication, "unknown." For a number of years after its erection this fine monument was called the "Navy Monument." Then there was still another "Navy Monument"—a book, published after the war of 1812, by Abel Bowser, commemorating our sea victories in that conflict.

THE VICISSITUDES OF THE TRIPOLI MONUMENT

The wanderings of the Tripoli memorial have been remarkable: conceived in the poignant tragedy of a barbarous war; born in a foreign land and under the shadow of an invader's sword; transported in the hold of *Old Ironsides* to the United States; first landed at Newport, R. I., and, as if unwelcome there, transshipped to Washington, D. C., where was shown further evidence of indifference or unfriendliness in the refusal of Congress to admit it free of duty; and held in some confusion till another service collection was made to defray the expenses of duty and erection; and, at last, landed, and raised in the navy yard at Washington; facing fire and violence six years afterwards, during the War of 1812; after a quarter of a century, removed to the Capitol grounds; and finally, removed to its present imposing and appropriate site in the beautiful grounds of the United States Naval Academy.

HISTORY

"This monument owes its existence not to public gratitude in our national government, nor to patriotic feelings of the citizens at large; but to the private friendship and admiration of the officers of the navy, who, of their own accord, assigned a portion of their pay to the erection of a memorial of actions as heroic as any that were ever achieved in naval warfare; from which, although they shared in the glory, their country alone derived the benefit."

Largely by the influence of Captain David Porter, a subscription was started in the Mediterranean Fleet, towards the end of the Tripolitan War, and when some three thousand dollars had been raised, he was authorized to contract for a suitable monument to be erected to the memory of the six officers who had been the heroic victims of that war.

Accordingly, Porter took advantage of a visit of the ships to the Italian coast, and, after advising with the most competent friends at hand, contracted with Micali of Leghorn for the design and execution of the memorial for the sum of about $3,000. The work was carried forward with so much expedition and skill that, when it was learned that the *Constitution* was about to sail for the United States and permission was given for its transportation, it was found practicable to crate and ship the monument

by that distinguished vessel in 1808, to its destined site, though it had to be landed first at Newport, R. I., and trans-shipped thence by another vessel to Washington, D. C., where it was landed unceremoniously in the navy yard after Congress refused to admit it free of duty.* It would appear that the bill to admit the monument free of duty was finally defeated by a "rider" in the Senate adding a thousand dollars for a railing and roof.

A bill to remit the duties on the Tripoli Monument was introduced in Congress about February 24, 1808, and taken up for consideration on the twenty-fifth—the following day—and ordered to the third reading.

And on March 8:

"The bill for remitting the duties payable on the importation of a monument, etc., was returned from the Senate with an amendment appropriating $1,000.00 for railing and covering the same; which was negatived in the House by yeas and nays, 59 to 48."

Latrobe, to whom was entrusted the erection of the monument, says:

"On its arrival, it became a question where it should be erected. The Capitol of the United States was pointed out as the proper place. But the unfinished state of that building and the size of the monument were objections. However, Congress was applied to, in the first place, for the sum of a thousand dollars, to defray the expense of putting it up. The application, though renewed in various shapes, proved altogether vain. The idea of placing it in the Capitol of course was given up, and the navy yard, originally the most proper situation, was chosen. To defray the expense of its erection, which could not be much less than eight hundred dollars, a further subscription by officers of the navy was also made, to which other citizens contributed." It is known that a balance left of the sum raised for relief of the victims of the unfortunate *Chesapeake* affair of the previous year was turned in to this erection fund; and that some of the contributions of officers were "taken off the books." "The Navy Department also gave every aid and facility to the work which could legally be afforded, and, in the year 1808 the monument was placed where it now

*_National Intelligencer_ of Monday, February 8, 1808, page 3, stated that: "The monument to be erected to the memory of officers who fell in the Mediterranean has arrived; and is now at the navy yard."

stands; the principal object of view to all those who enter the yard, either by land or water, and to an extensive portion of the city and of the port."

Cooper, in his *Notions of the Americans,* says, "The high-spirited contributors to the little work thought the Congress did not pay a suitable respect to their request for a site in a more public situation. They were masters of the navy yard, and, in disgust, they caused their modest memorial to be put up in the center of its area. It may be doubted, after all, if any other situation so appropriate, or so touching, could have been found."

DESCRIPTION

"The monument itself consists of a rostral column of the Roman Doric order mounted on a pedestal to which the character of a sarcophagus is given. The whole forms a well proportioned pyramidal group of sixteen feet base and thirty feet in height. Four life-sized and two smaller human figures surround the column, the larger ones typifying America, Commerce, History, and Victory, and the smaller ones forming adjuncts to the figure representing America and themselves symbolizing posterity. On top of the column is an American eagle bearing a scroll with the federal motto 'E Pluribus Unum' on it. The column also has on the east and west sides each three antique rostra, and on the north and south sides antique anchors in flat relief.

"The pedestal has on its south side the inscription:

'Hic Decorae Functorum in Bello Virorum Cineres'

"The column with its pedestal stands on a square block of rather good proportions. It has an upper border of semi-circular compartments on which are sculptured in basso relievo, alternately, a Turkish turbaned mask and a trophy of Turkish arms. On each side of the block is a panel. That to the south represents in low relief a view of Tripoli, with frigates and gunboats in the foreground attacking the town. On the north side is this inscription: 'Erected to the memory of Captain Richard Somers, Lieutenants James Caldwell, James Decatur, Henry Wadsworth, Joseph Israel, and John L. Dorsey, who fell in the different attacks that were made on the city of Tripoli, in the year of our Lord 1804, and in the twenty-eighth year of the independence of the United States.' On the east side is: 'The love of glory inspired

them; fame has crowned their deeds; history records the event; the children of Columbia admire, and Commerce laments their fall.' On the west side is: 'As a small tribute of respect to their memory and of admiration of their valor so worthy of imitation, their brother officers have erected this monument.'

"The block on which these inscriptions are cut is raised upon three steps at three angles of which are placed three of the four life-sized figures already referred to as surrounding the column. At the southeast is a female figure with a diadem of feathers on her head, and a short, petticoat-like garment of ostrich feathers around her waist. She wears Roman leggins and shoes, but is otherwise nude, except for the garment about her waist. She leads up two children and represents America.

"At the northwest angle is a figure representing History. She is fully clothed and holds a book in her hand (the left) and a pen of bronze gilt in her right. She is looking up toward the column and is commencing to write.

"At the northeast angle is a figure of Commerce standing. His right hand points to the column, and in his left is the caduceus. This is the chief sculptural feature of the monument from the point of view of artistic excellence.

"At the northwest of the pedestal, or rather of the block that supports the pedestal and column, and therefore higher than any of the previously mentioned figures, is a Winged Victory. In her right hand she holds a wreath of laurel over the sarcophagus, and in her left is a branch of palm of bronze gilt.

"At the four corners of the base of the monument are four urn lamps of black variegated marble, with flames of bronze gilt, one such lamp at each corner, that is.

"The whole monument is placed on a square mass of solid freestone about five feet high and sixteen feet wide, and excepting the base the whole work is executed in white Carrara marble.

"The dimensions are:

"Foundation 15 feet 3 inches square and about 13 inches above ground.

"Masonry block 11 feet, 3 inches square and 71 inches high.

"Three marble steps 7 inches high each, and 10 feet 8 inches, 8 feet 9 inches, and 6 feet 10 inches square, respectively.

"Block supporting pedestal and column 44 inches high, with a smaller block 22 inches high between it and the pedestal, which is 7¾ inches high and about 15 inches square.

"The column is 42 inches in circumference or about 13.4 inches in diameter. It is about 14 feet high above the pedestal."

The foregoing is Latrobe's description of the monument as it first stood in the Navy Yard, Washington.

Of its place in the Washington navy yard, its conspicuous situation is shown in the old 1827 sketch of that yard, where it is marked as standing immediately inside the main gate, and in the midst of the main avenue, flanked by the flag pole and two captured bronze guns—the same which are now seen there. Tradition has it that Commodore Thomas Tingey, commandant of that yard during the first quarter century of its existence, was not enthusiastic in his reception of the monument there, not having been advised particularly of its history, purpose, authorization, destination, etc., but after it had been declined for the Capitol grounds (probably, on Latrobe's advice) and accepted by the Navy Department for the yard, it was Tingey who placed it so conspicuously, and who displayed deep indignation over its mutilation in August, 1814. It was said of this brave officer that he was the last to leave the yard after, by express direction of the Secretary of the Navy, he had set fire to it, and the first officer to re-enter it after the British marines marched away. Here his word was law, and he ruled the yard with a high but efficient hand. After his death, an outrageous story was jokingly circulated in naval circles to the effect that he had willed the navy yard to his family—the point of the yarn arising from his long tenure of office, and his rather dictatorial manner and method of administering it; and some air of truth may have been derived from the fact of his having left property adjacent to the yard to his heirs. Commodore Tingey was a distinguished citizen in and around the Capital, as well as an able, conscientious, and highly respected naval officer.

As to the two trophy guns mentioned, it seems a strange oversight and an unfortunate one that they should not have been removed with the monument, to which they naturally lend themselves, to Annapolis, when that beautiful memorial found its final resting-place.

But while it stood in its commanding position in the navy yard, it witnessed many stirring and momentous events: almost immediately after its erection, came the boom and roar and flame and fate of 1812, and the terrible history of 1814—the loud preparation of ships and gunboats at the yard, the war councils and hastening troops in that vicinity, the short blast of battle at Bladensburg within hearing, the retreating troops, the little president atrot on horseback, with the duelling pistols which had been loaned him by the Secretary of the Treasury bobbing up and down in the deep pockets of his long coat, while Barney lay at the spring, near where he had fallen, having his wounds washed and dressed by a British naval surgeon. Then, as news of defeat arrived, and all hope of defense vanished with the retreating forces beyond Georgetown, Tingey, in tears, but with steady step and voice, emerges from his quarters near by, and taking stand beside the monument to his dead comrades, obeys the orders of Secretary Jones, and gives the signal to fire the yard. Then succeeded that awful evening and night of destruction there, the abandonment of the yard, with its trophies and property, and the coming next morning of the enemy.

Then, three days later, on August 27, occurred the blowing up and abandonment of Fort Washington, a few miles down the Potomac, and the fall of Alexandria, in full view.

As the eventful years passed by, came an affair which touched very closely the soul of the monument—the general court-martial assembled in the Washington yard to try its sponsor and godfather, Commodore David Porter, on charges growing out of the cruise against pirates in the West Indies. Daily, distinguished visitors entered and passed under its shadow, and, in 1829, Tingey died there, gazing upon it.

Hull succeeded Tingey in command of the yard, and during the summer of 1829, at the request of the District Court, there was made in the yard a model of a ducking stool, which was exhibited before the judges, during the trial of Mrs. Anne Royall, on the charge of being a common scold. So states Sarah H. Porter, page 137.

After a quarter of a century had elapsed, the old agitation was renewed for its removal to a site in the west Capitol grounds, the former objections, as to the unfinished state of the building, no

longer existing, though, in fact, the building was far from completion, and Latrobe was no longer there.

In the dearth of data of the handling of the monument from time to time and from place to place, there has not been found any record of the discussion of the question of its removal from the yard. But this site had always had its advocates, and, it may be fairly conjectured, the much heralded spring-water supply, being piped from Smith's farm, several miles north of the city, may have been a factor in influencing the movement to give the monument a place of honor under the shadow of the great national building, for, as will presently be seen, this water became a distinct feature of its new setting.

The *U. S. Weekly Telegraph* of May 12, 1831, says: "It must be gratifying to our fellow citizens to learn that the beautiful monument in the navy yard . . . . is now undergoing a complete repair. The mutilated and destroyed ornaments are to be replaced, and the whole is to be removed and fixed upon the oval plat of ground on the upper glacis immediately west of the Capitol. It will there form an object of more conspicuous interest than in its former situation, and will, besides, add much to the beauty of the edifice." Then follows a quotation from the *Fredericksburg Arena*, of contemporary date, which opens with the interesting statement concerning the monument, "Though in a state of dilapidation, this beautiful specimen of the arts cannot be viewed without emotion," and closes with the statement that "the expense of the removal and repairs will be defrayed by the Navy Department."

The second session of the twenty-first Congress appropriated the liberal sum of twenty-one hundred dollars for the removal of the monument (1831) which, in 1808, they had refused a free passage of our customs, and the meager cost ($1,000) of its erection.

From: *American State Papers*— P. 37, Vol. 4

Removal of Naval Monument

Navy Commissioners Office.
November 24, 1831.

Sir:

The amount appropriated for removing and reconstructing the Naval Monument, was— $2,100.00

Of this sum the disbursements to the present time amount to—	1,502.50
There will be due to contractors on the completion of the work—	564.96
For extra work—	32.54
	$2,100.00

The inscriptions on the monument being very faint, it has been proposed to improve them; and for this purpose, should it be approved, there will be required an additional appropriation of one hundred and thirty dollars.

With very great respect, I am, Sir,
Your most obedient servant,
(Signed) JNO. RODGERS.

Hon. Levi Woodbury,
Secretary of the Navy.

Secretary Woodbury, in his annual report for the year 1831, said, "Under an appropriation made at the last session, the naval monument has been removed from the navy yard in this city to a site west of the Capitol. The expense has not exceeded the estimate, although, in addition to repairs, about two hundred dollars worth of labor, not included in the estimate, will be required fully to compensate the contractor, if he proceeds to renew the inscriptions, besides giving uniformity of color to the statues. But this, as the appropriation is already exhausted, must depend solely upon the liberality of Congress (Q)."

When completed, the monument stood just west of the nearly finished marble building, and was placed in the midst of an oval basin which contained nearly 79,000 gallons of fresh water, running in from a large pool above, and in which swam numerous gold fish. Sessford says the basin was of freestone, and Cook mentions the iron railing.

But it is to be feared that, as time went on, the monument, with its limpid pool, shrubbery, and gold fish, was slighted, and allowed to become dingy or bedraggled in appearance, for we hear of Porter's disgust upon his return to the United States when he learned of its removal, and saw it in "a muddy duck-pool," neglected and out of place. "About 1829, Commodore Hull, commandant of the yard, proposed to Commodore Porter the removal of the monument to a place near the Capitol, but P. objected, claiming that the navy yard was its proper element and the place for

which it was originally intended; and he made the same reply to a member of Congress. But while Porter was away from the country, the monument was removed to the Capitol grounds, and the obnoxious inscription (concerning its mutilation in 1814) was removed." When Porter returned and discovered the removal, his comments were characteristically bitter, and in the correspondence which ensued, he adds, "And, to cap the climax of absurdity, the Naval Monument had, as an evil omen, I presume, been placed in a small circular pond of dirty fresh water (not large enough for a duck paddle to represent the Mediterranean Sea." *A&N Chronicle*, April 18, 1839, pages 258-62. And in this Sessford appears to have agreed with him, for in 1834 he says, in his *Annals of Washington*, "The fountain is neat and ornamental, but too confined. The Naval Monument loses its effect from being so near the Capitol. Were it removed to the island in the Botanic Garden, properly elevated, with a sufficient sheet of water around it, it would be seen to more advantage." This note of disapproval was still pursuing the monument when a little later Watterston, referring to it, says: "This neat and beautiful monument was formerly erected in the navy yard, a much more appropriate place than the one in which it now stands," and, no doubt, he with many other critics, was gratified when it was finally determined to remove the monument again—this time to its final, and quite appropriate, resting-place—the handsome grounds of the United States Naval Academy at Annapolis, Md., which occurred in the summer of the lowering year, 1860, the appropriation passing for it on June 22.

The progress of the removal was mentioned from time to time by the Washington correspondent of the *Baltimore Sun*, as follows:

August 2, 1860: "The Naval Monument is down, and all except the figures are taken to the navy yard, from thence to go by boat to Annapolis."

August 13: "The Naval Monument is at the wharf being put up for transportation to Annapolis, and will probably be sent off this week."

September 4: "The statuary of the Naval Monument is about to be shipped on the steamer *Annacostia*. She is waiting for repairs to her machinery before leaving."

October 15: "Tomorrow the *Annacostia* will leave with the remainder of the Naval Monument for Annapolis."

And on November 5, the Annapolis correspondent of that paper stated: "Workmen are now engaged in re-erecting the Naval Monument."

Thus, after lying forlornly in its crates a second time in the navy yard at Washington, this exquisite memorial finally reached its welcome place sixty-two years ago, there, in a congenial atmosphere, to abide undisturbed permanently.

No record has been found of the adoption of the new name—The Tripoli Monument.

Aside from its charming character as a work of art, it has an eloquent story to tell—of heroic sacrifice for cause, flag, and country, and of no less admirable qualities of shipmates who were faithful to the memory of their heroic dead.

It is well placed, where so many thousands of young officers pass and repass it daily, catching the thrill of its story, and learning the very names of its martyrs, as a part of the training and character they receive and absorb amidst the inspiring experiences and atmosphere of that institution.

Well would it be for all Americans to know more of the story of our monuments.

The Tripoli Monument stands as an eloquent memorial of brave patriotism and reckless devotion to lofty duty, and as a deathless mark of gratitude and loyal remembrance by surviving shipmates.

> As fair as their record of glory,
> It stainless stands under the sky,
> A beautiful, white sculptured story,
> Of deeds that we cannot let die.

Sources: Alden, Latrobe, Watterston, *Columbia Historical Society Reports, National Intelligencer, American State Papers, Naval Chronicle, Annalitical Magazine,* David Cook, Mr. Fairman, arcurator, Office of the Architect of the Capitol, etc.

DISCUSSION

An Administrative Flagship

(See Page 1299, Whole No. 234)

Lieutenant Commander Frank Luckel, U. S. Navy.—Captain Taussig's well presented paper contains many good arguments in favor of the administrative flagship. Apparently by the term "administrative flagship" is meant a non-fighting flagship. This matter appears to be a recurrence of the old question of battleships versus special vessels such as battle cruisers, submarines, aircraft, destroyers, cruisers and other special types. A well balanced fleet comprises battleships, special types and non-combatants. The Commander-in-Chief is concerned with every type of vessel in his fleet. Judged solely from this viewpoint, it appears sound to station the Admiral on a fast independent vessel.

However, while the Commander-in-Chief is no doubt concerned with every subdivision of his fleet, there is a considerable school that would regard his paramount duty to be with the battleships. Submarines, aircraft, scouts and destroyers are considered to be mere adjuncts to the battleship fleet. Each type has its rôle which is played *with reference* to the battle fleet. Their station both before and during the battle is determined *with reference* to the battleships. The officer in immediate command of submarines, aircraft and destroyers should have a technical knowledge of his particular type. He would operate during battle in accordance with doctrine subject to such orders as he may receive from the Commander-in-Chief.

If the fact be accepted that scouts, battle cruisers, destroyers, aircraft and possibly submarines take their battle stations with reference to the battle fleet, then the officer in control of the battleships controls the fleet. The question now arises as to whether the Commander-in-Chief can control the battleships to better advantage from an administrative flagship located outside of gunfire range than he can from the leading battleship. If he be on board the administrative flagship he must rely entirely upon signals of some form. He also must rely very greatly upon the intelligence and loyalty of the officer in immediate command of the battleships. His perspective of the battle should be better in so far as concerns the fleet as a whole. He would, however, not be so well informed with regard to the main action between the battleships. It is a question whether this is desirable.

If the Commander-in-Chief be on board the leading battleship he is in immediate control of the battle fleet. He can keep in constant touch with the progress of the action and take advantage of all favorable op-

portunities. His control of the battleships does not depend entirely on signals since the column is flexible and the course can be changed without signal. Forces composed of special types would operate according to doctrine and *with reference* to the battle fleet.

An ideal fleet flagship would be a very heavily armored battleship having somewhat higher speed than the other battleships. Ample quarters should be provided for the Admiral and his staff. Facilities for chart and game board maneuvers should be provided. The arrangement of masts and antennæ should permit of long range radio communication. The cruising radius should be sufficient to permit of the strategical administration of the fleet as a whole. The above features can only be obtained by a sacrifice of the offensive power. It is in consequence proposed to reduce the number of turrets in so far as necessary. This reduction will reduce the number of turret officers and hence fewer staterooms will be required for the ship's officers. It will also permit a better arrangement of the masts in order to facilitate communication by signals or radio. This flagship would be able to take its place at the head of the battle fleet. The unusually heavy armor would insure a long life. "Fighting ships are not built that way" but why not begin doing so at the next opportunity.

In the administration of the fleet and the conducting of a strategical campaign the Commander-in-Chief would be "always tied down to a slow moving battleship." However, this battleship would be the fleet flagship and could take the Admiral wherever his presence is required. The "battleships should train and operate together." However, the absence of the fleet flagship would give the second in command an opportunity to gain experience in handling the battleships. This training would prove very valuable in case the fleet flagship should be sunk and the command pass to the second in command. The flagship's "separation from the other battleships weakens the fleet as a whole." The converse of this is that upon its rejoining the other battleships the fleet would be strengthened. "The general headquarters must be entirely independent of the subdivisions that compose the fleet as a whole." The fleet flagship is sufficiently independent of the battleship squadrons under the present organization. The fleet flagship cannot go to a distant port "without interfering with the training of any unit of the fleet." However, if all opportunities for training are taken advantage of, the flagship's fighting efficiency should not be seriously reduced.

"The commander of an army now takes a position from which he can best handle the situation, and this position is *not* in the front line." The Admiral of the fleet should undoubtedly be permitted to take the most advantageous position. Such a position is believed to be at the head of the battleships. However, he would not be restricted to this position and could go wherever most needed. If the Admiral were placed on board an administrative flagship his freedom of movement would be seriously restricted since he "may be anywhere *not too near* the fighting front." This inability to enter the battle is believed to be a serious handicap.

"Because an administrative flagship is not a fighting unit" is held to be a fatal defect. "It has been customary to have a peace organization and a war organization. This, of course is fundamentally wrong." How the addition of an administrative flagship to the fleet would create a war organization is not apparent.

"Our Commanders-in-Chief have been so much more intimately connected with the battleships, it is natural that their efforts for efficiency have been devoted mostly to this class of vessel." This condition probably exists and it is believed that it is for the best. The battleships are the backbone of the fleet and their efficiency will probably have a predominating influence in case of battle. Furthermore, the Commander-in-Chief probably wisely intrusts the handling of the special wings to subordinates who have specialized in their particular types. "Being attached to one of the subdivisions of a fleet,—owing to the perversity of human nature. narrows his viewpoint." Since the Admiral must be attached to some vessel it would appear desirable to "narrow his viewpoint" in the direction of the main battle fleet rather than elsewhere. "The battleship is expensive to operate" whether or not the Commander-in-Chief is aboard. This argument can have little weight considering the cost of operating the navy as a whole. Is it "illogical to place the Commander-in-Chief on a vessel that is the most costly to move from place to place," if his presence there will help to win the battle? "The conversion of one of the old armored cruisers" into an administrative flagship would, it is believed, produce a flagship having most of the disadvantages of the battleship flagship without its advantages.

"The tactical game board and the chart maneuver" are most important facilities for the training of all officers. Every battleship could and should be fitted to permit such training. The chart maneuver does not require any extensive facilities. Without doubt, considerable danger to the radio aerials and signal yards may be sustained by the battleship flagship in action. Also the position of the administrative flagship on the unengaged flank might facilitate signalling. The Commander-in-Chief would be in a safer position if located outside gunfire range. These are advantages in favor of the administrative flagship which are conceded. There are no doubt many other advantages but we should consider the question thoroughly before stationing the Commander-in-Chief on a non-fighting vessel.

Promotion by Selection

(SEE WHOLE NO. 235, PAGE 1487)

REAR ADMIRAL ALBERT GLEAVES, U. S. NAVY.—Rarely has the Naval Institute published a more timely paper than the one under discussion. Those who will not agree with Mr. Barnes' conclusions, must at least acknowledge the excellent presentation of his arguments.

The service has been disturbed many years by the question of promotion by selection and when the present method was established by law, it was hoped that a satisfactory solution had been found. After six

years, however, it is safe to say that at least a majority of the Navy believes that it has failed, and are now looking for something else. Better the old Plucking Board in spite of the final grievous mistakes which put it to death.

No one probably denies that there should be a method by which the worthy are rewarded and the unworthy cared for otherwise, and the old machinery was suitable for the purpose had it been properly used. There has always been selection for duty regardless of seniority, and this as Mr. Barnes remarks is the true selection "that carries with it no jealousy, injustice or hatred,"—or at least the minimum amount.

The present law is unfair in not requiring the board to inform an officer passed over the reason for this action. To try, and condemn a man *in camera*, is to violate every principle of justice, and disregards—if my history is correct—the fundamentals of the Magna Charta, the Bill of Rights, and the Habeas Corpus Act, for all of which much blood has been spilled. It is un-American. It certainly does not make for the best interests of the service.

If the present method—it is not a system—of promotion by selection has benefited the service in a few cases of accelerated promotion, the benefit has been offset by the consequent humiliation inflicted upon those meritorious officers who have been passed over in many cases by others not distinctly of superior ability, but who are denied the privilege of retirement.

It was frequently said in the clubs and elsewhere when the first Selection Board met in 1916, that its proceedings would establish a precedent for succeeding boards. They did not. The first board attempted to break away from seniority and *select*. After six years' trial, the net result of "selection," has been a topsy-turvy re-arrangement of the lists in the upper grades, by the subsequent promotion of nearly all the officers passed over, but with their precedence lowered. Nothing can be more subversive to discipline and efficiency than repeated shifting of rank and precedence. With such instability of seniority no one knows where he stands. Under such conditions military hierarchy vanishes.

A cruelty begotten by the Star Chamber method is the havoc that gossip often plays with an officer's reputation. The board of course assigns no reason for passing over any one, and preserves a dignified silence. Then those twin imposters, Rumor and Gossip, get to work. I recently listened to a detailed and vicious account of why a certain officer had been passed over, which I knew personally to contain only the merest thread of truth, and the alleged facts to be absolutely incorrect.

A serious indictment of the operation of our Selection Board is that it decreases initiative and encourages officers to play safe. Many fear to incur the disapprobation of their seniors, and what is even worse, the criticism of their juniors, lest their chance of promotion or preferment be imperilled. The result is sycophancy working downward as well as upward, which of course reflects on those so affected, senior as well as junior.

No one doubts the sincerity of the board which is sworn to perform its duty without prejudice and partiality, having in view the best interests of the service. I have served on three boards, and I have never seen men work more conscientiously, or strive more earnestly to do their duty, with an eye single to the good of the service. But I believe we failed in part, simply because we are human.

A well known Admiral, a member of the board, once remarked, "If we sat here and deliberated for six months we would even then adjourn feeling that we had done injustice to some one." Humanly speaking it cannot be otherwise.

I concur with Mr. Barnes that selection should be in the lower grades, up or out.

We cannot do better than to adopt the English system of promotion by seniority after reaching command rank.

U. S. NAVAL INSTITUTE

SECRETARY'S NOTES

Membership Life, regular and associate, 4,824. New members, 5. Resignations, 1. Deaths, 1: Ensign A. O. Harrington, U. S. Navy.

Practically the whole service receives the benefit of the PROCEEDINGS, yet many officers who read it monthly are not members, and therefore contribute nothing to the support of the Institute.

The publication of the PROCEEDINGS involves a monthly deficit that is a tax on the resources of the Association. The loss of 653 members during the last year is a serious matter, as this deficit can best be overcome by an increase in the membership roll. However, the gradual decrease in membership during the last few years may be looked upon as an aftermath of the war. Earnest effort is being made to counteract this, and there are encouraging signs that it will soon stop and the tide turn the other way. If the Service will give the Institute a little more support, it will not be necessary either to curtail the PROCEEDINGS or to increase the yearly dues. *Members are requested to urge non-members to join.*

Dues The annual dues ($3.00) for the year 1922 are now past due.

Regular and associate members of the U. S. Naval Institute are subject to the payment of the annual dues until the date of the receipt of resignation.

Discussions Discussion of articles published in the PROCEEDINGS is cordially invited. Discussions accepted for publication are paid for at one-half the rate for original articles, or about $2.25 a page.

Articles The Institute desires articles of interest to all branches of the service, including the reserve force. Attention is invited to the fact that the submission of articles

is not limited to members, and that authors receive due compensation for articles accepted for publication.

The attention of contributors is requested to the difficulties attending the publication of long articles in the PROCEEDINGS. The number of pages in each issue is limited. Also, members have criticized the unbalanced effect resulting from the publication of long, discursive papers. It follows that compact, well digested articles are more likely to be accepted for early publication.

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As soon as practicable after the publication of books on subjects of professional interest, the Institute aims to publish authoratative reviews of them.

The Board of Control has authorized increased compensation for book reviews in order to improve these columns in the PROCEEDINGS.

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Principles Underlying Radio Communication, 2nd edition (comprising radio communication pamphlet No. 40, prepared by Bureau of Standards; revised to May 24, 1921 by Signal Corps, U. S. A.) price: $1.00.

Address orders to: U. S. Naval Institute, Annapolis, Maryland.

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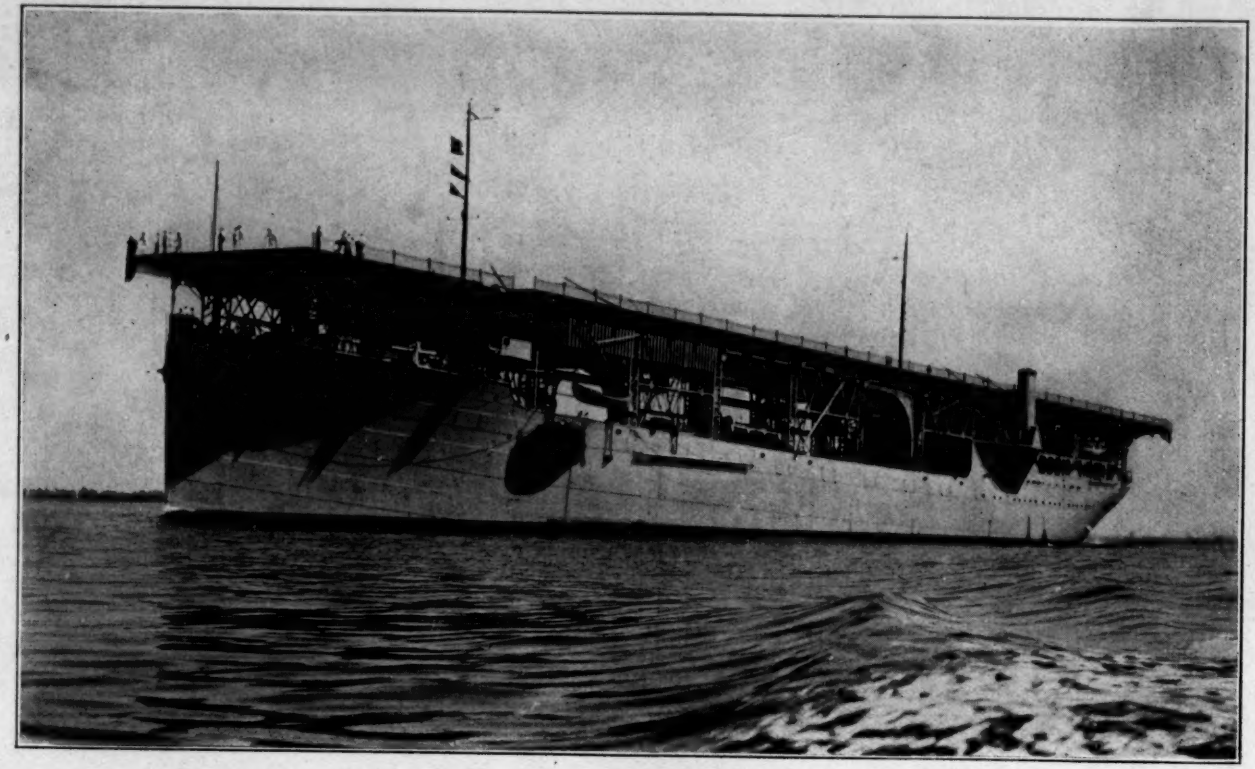


U. S. S. LANGLEY

For description see Page 1967

PROFESSIONAL NOTES

PREPARED BY

LIEUTENANT COMMANDER F. W. ROCKWELL, U. S. NAVY

and

LIEUTENANT COMMANDER J. B. HEFFERNAN, U. S. NAVY

GENERAL ARRANGEMENT

VESSELS BUILDING, NAVAL POLICY, MATÉRIEL, PERSONNEL, MERCHANT MARINE — Great Britain 1953
France 1959
Japan 1963
Germany 1964
United States 1966
ENGINEERING 1973
AERONAUTICS 1975
ORDNANCE 1980
RADIO AND NAVIGATION 1982
MISCELLANEOUS 1984
CURRENT NAVAL AND PROFESSIONAL PAPERS 1992

GREAT BRITAIN

SERVICE PAPER EDITORIALS.—NEW CONSTRUCTION.—According to an Admiralty announcement quoted by a London evening paper on Thursday, "it is intended to start on the building of two new battle cruisers in the coming autumn." The use of the term "battle cruisers" in this connection is probably a journalistic slip, since it is most unlikely that the new vessels will belong to that type. On a displacement of 35,000 tons it would be impossible to provide a high turn of speed without unduly forfeiting offensive and defensive power, to both of which qualities the Naval Staff is known to attach great importance. In well-informed circles it is regarded as improbable that the speed of the new ships will be in excess of that of modern battleships, the fastest of which are the Japanese *Nagato* and *Mutsu*, said to be good for 23½ knots at full power. It the tactical doctrines of prewar days still governed design there would be some reason to anticipate very high speed in the new vessels, with a corresponding sacrifice of protection, but today the trend of naval opinion is rather the other way. In view of the enormous weights involved by the armament and defensive features now in vogue, there would be but a relatively small margin for the machinery in a vessel of 35,000 tons, and if Sir E. T. d'Eyncourt contrives to rival the Japanese *Nagato* in this respect he will have accomplished a remarkable feat. The statement that the two battleships will be laid down in the coming autumn is at variance with previous official announcements. In the First Lord's memorandum on the current estimates the date of commencing the work was given as "early in 1923," and the smallness of the vote for new construction during the present financial year renders it improbable that much progress could be made on the vessels up to the end of next March, even if they were begun at an early date. So far, however, no major contracts for the work have been awarded.

VANISHED SQUADRONS.—*The Engineer* publishes some striking figures to illustrate the enormous reduction which the material of the Royal Navy has undergone of late years. After pointing out that the withdrawal of the last six ships condemned under the Limitation Agreement will bring the fleet down to eighteen battleships and four battle cruisers, it goes on to compare this establishment with that which was maintained respectively in August, 1914, and at the date of the armistice. When the war began we had twenty-two dreadnaughts and nine battle cruisers ready for service, in addition to forty pre-dreadnaughts and thirty-four armored cruisers, while ten battleships and one battle cruiser were building or fitting out. In all, therefore, we had forty-two all-big-gun ships and seventy-four armored vessels of the older type, representing a grand total of 116 ships. During the war we added three battleships, which had originally been ordered by foreign Governments, and two battle cruisers, these five ships exactly balancing our war losses in the dreadnaught class. Our strength in this type, therefore, remained constant, but the heavy wastage among the pre-dreadnaught material was not replaced. When the fighting ended we had in service the following: dreadnaught battleships, thirty-three; battle cruisers, nine; pre-dreadnaught battleships, thirty, and armored cruisers, seventeen—exclusive of several other ships used for subsidiary duties. Of these eighty-nine vessels only twenty-two now remain, a fact that reveals the thoroughness with which our scrapping policy has been carried out. The pre-dreadnaught fleet has completely disappeared, together with fifteen all-big-gun ships. Minor vessels have, of course, been discarded in still greater numbers. Roughly speaking, seventy-five per cent of the destroyers have gone, and the submarine flotilla has been reduced from 130 boats to fifty-eight. Even when the deletions made under the Washington agreement are taken into account, it will be found that Britain has scrapped far more fighting ships than all the other Powers combined.

RETRENCHMENT IN AUSTRALIA.—It is obvious from the details given in our columns last week that the demobilization of the Royal Australian Navy has been much more drastic than is indicated by the official list of ships available. Altogether there are thirty-three units under the Australian flag, and of these no fewer than twenty have been placed out of commission. The remaining thirteen are not all fighting ships, five of them being auxiliary or depot vessels. There are six submarines of a very effective type—*J* class, of 1,200 tons, with a surface speed of 19½ knots—but they have all been paid off. As the result of this sweeping system of retrenchment, a sudden emergency would now find Australia unable to send to sea more than three or four light cruisers, three destroyers, one sloop, and the auxiliary ships mentioned. Even if sufficient officers and trained men were at hand to provide complements for the vessels now laid up, it would be a considerable time before they could be regarded as efficient for war service. Especially would this be the case with the submarines, whose war value is largely a matter of prolonged and intensive training. In spite of this radical cut in naval expenditure, the Australian papers continue to express alarm at the growth of Japanese sea power, yet few of them advocate the only policy by which this uneasiness could be allayed, namely the maintenance of an Australian fleet unit as strong and efficient as the resources of the Commonwealth would permit. Such a squadron could probably be kept up by a smaller contribution per head than we at home are called upon to pay for national defense. It appears, however, that the late Admiral Dumaresq's plain words to his compatriots on this score have not yet taken effect.—*Naval and Military Record*, 23 August, 1922.

DOMINIONS AND NAVAL DEFENSE.—The cable from the *Morning Post's* Wellington Correspondent contained in the issue of the 21st inst., giving a summary of the Admiralty suggestions regarding New Zealand's naval development, is the first information made public in this country concerning the matter. As it may be assumed that the general principles expressed by the Admiralty refer also in varying degree to naval assistance by other Dominions, it is of interest to examine the suggestions in detail.

The governing idea is that during the period of financial stringency, which is affecting the Dominions as it is this country, the organization of Dominion Navies should be such that they are capable of rapid expansion when times improve. The basis of this organization is a seagoing squadron, while the means of expansion are light cruisers and ocean-going submarines. The Admiralty further suggest that all reserves should be supplied locally, and that the necessary provision for the local squadron in the matter of bases, docks, reserves of stores and fuel should be made. Trade protection, in so far as it concerns local waters, is another responsibility which the Admiralty are seemingly desirous of delegating to the Dominion, to which end it is suggested that storage for guns for defensively armed merchant vessels, together with trained personnel for their operation and to form the crews of escorting vessels, should be provided by the Dominions. The elaboration of the mobile defense of ports, including mine-sweeping organization, completes the purely local measures that have been suggested.

In the matter of the wider Imperial sphere the idea is that the Dominions should assist financially, or by the provision of material, toward equipping the Empire with naval bases. The suggestions, therefore, fall into two clear divisions, local and Imperial. They also appear to have been framed with a definite strategical object in view, and mark a considerable advance in the putting forward of clear-cut principles.

This is not the time to discuss the question of local navies as opposed to an Imperial Navy; but it is possible to infer from the Admiralty suggestions what is the strategical object they have in view. To take first the Imperial sphere—the equipment of the Empire with naval bases. This is no doubt aimed at increasing the mobility of the Navy as a whole, and rendering it eventually possible to move rapidly a large force to any threatened quarter of the Empire, and to maintain it there for a prolonged period if necessary. At present, owing to a lack of fully-equipped naval bases and fuelling stations outside home waters, the mobility of the fleet is very seriously prejudiced and a grave risk is thereby incurred.

But, however mobile our main fleet, circumstances are conceivable which might render it necessary for the Dominion naval forces, aided by such squadrons of the British Navy as were on the spot, to deny to an enemy the control of local communications until such time as the main fleet could arrive and occupy a strategical position from which it could either contain the enemy's main fleet or bring it to action. The action of the local forces under these conditions would necessarily be of a delaying character. Indeed, it could be no more.

There is but one form of naval force which can adequately perform the function of delaying a superior force in the attainment of its object, which may be assumed to be the control of local communications for invasion or other purposes a fleet in being. A "fleet in being" may be defined as "a fleet strategically at large, not itself in command of the sea, but strong enough to deny that command to its adversary by strategic and tactical disposition adapted to the circumstances of the case." The submarine, owing to its power of submerging at will, is capable of maintaining itself strategically at large under conditions which would inevitably require a weak fleet, composed only of surface craft, to shut itself in a defended harbor in order to avoid annihilation.

On the other hand, submarines can only remain strategically at large until such time as the other side have developed fully their counter-measures. But that takes time, and time, in the case under discussion, means everything. It also follows that the greater the radius of action of the submarines, the longer before the full force of counter-measures can be applied. Therefore, for a modern fleet in being or delaying force, ocean-going submarines with long range are preferable to small submarines tied down to coastal waters. In addition, until his counter-measures are in full operation, they, in conjunction with aircraft, prevent an enemy establishing himself within easy striking distance of his objective. Considerations such as these have, no doubt, influenced the Admiralty in urging on the Dominions the employment of ocean-going submarines.

The suggestions regarding local protection of trade, bases, docks, and mobile defense speak for themselves and do not require elaboration.

The Prime Minister of New Zealand is reported as having said that in present conditions it was impossible to do everything, but they must make a beginning. Evidence of this goodwill is forthcoming in the report that a sum of £400,000 is to be spent on naval defense next year, but it must be admitted that this will not go very far in meeting the Admiralty suggestions. Australia, on her part, has been drastically pruning her Navy. There are now in full commission only three light cruisers, one flotilla leader, two destroyers, and a sloop. All the six *J* class submarines, belonging to Australia have been paid off, together with nine destroyers. It will be recognized that, under such conditions, any form of combined training of all arms is out of the question.

Canada has gone to the length of paying off the whole of her sea-going squadron, consisting of a light cruiser and two destroyers. The latter will be kept in reserve, but Canada's active Navy is now represented only by four trawlers, two on the Atlantic and two on the Pacific coast. These trawlers are to be used for training Royal Naval Volunteer Reservists. South Africa, of course, has only just made a beginning. She, too, is concentrating on the enrollment and training of R. N. V. R., and has two trawlers and a sloop for the purpose.

It is obvious, therefore, that a very great deal remains to be done before we can have an Imperial Navy organization on the lines suggested by the Admiralty. That the need for it is urgent and pressing, nobody who has studied the situation will deny; but it seems that it will not be brought home to the great bulk of the people at home and in the Dominions until the case is put fairly and squarely before an Imperial Conference on Naval Defense, which should be called without delay.—*London Morning Post*, 24 August, 1922.

BATTLESHIP COMPARISONS.—The backbone of our post-war navy is formed by the ten battleships of the *Royal Sovereign* and *Queen Elizabeth* classes, nine of which are kept in full commission. Small though it be in point of numbers, this force is a compact, homogeneous, and formidable battle fleet. The oldest ship, *Queen Elizabeth*, was completed nearly eight years ago, and the last to enter service was the *Ramillies*, which hoisted the pennant in September, 1917. So rapid have been the developments in naval science during the past few years that all these fine vessels would soon have become obsolete but for the Washington limitation scheme, which, by cancelling most of the post-Jutland ships building for the principal navies, has given their predecessors a new lease of life.

Compared with all but the very latest addition to the American and Japanese fleets, the ships we have named are, relatively speaking, still in the front rank, and will continue to occupy that position so long as the naval holiday lasts. For this reason, the expenditure of fairly large sums on refitting them from time to time is quite justifiable. The *Royal Sovereign* rejoined the flag lately after a long spell in dockyard, where she

was fitted, among other improvements, with bulge protection. The *Royal Oak*, it is understood, is now receiving the same treatment, one result of which is to increase the beam of the ship by about thirteen feet. When this job is finished all the five ships of the *Royal Sovereign* class will be equipped with that form of bulge which has proved so valuable a defensive against underwater attack, and it is believed that each could stand the explosion of at least two modern torpedoes without sustaining mortal injury. Owing to the addition of the bulge and other structural modifications, the normal displacement has risen to about 29,350 tons, increasing at full load to 33,500 tons. According to "Jane," they are fine and steady ships, those with bulge protection being splendid gun platforms, but they "suffer rather from reduced freeboard."

Partly as a result of the publicity which she received at the time of her launch, and partly owing to her dramatic appearance at the Dardanelles early in 1915, the *Queen Elizabeth* has for long been regarded by the general public as the most powerful type of battleship afloat. So she certainly was when completed, but today there are other ships which surpass her in fighting power. On paper she is inferior to the *Royal Sovereign*, for she lacks that special underwater protection which has come to be regarded as a sine qua non, but even so there are many officers who believe her to be the better all-round ship. Bulges could, of course, be fitted to the *Queen Elizabeth* and her four sisters, but to do so would bring down their speed by at least a knot, and probably more, and apparently it has been decided that the sacrifice is not worth while. These ships are sometimes compared with the very latest American and Japanese battleships, to which they are in some respects inferior, but it is fairer to match them with a contemporary, such as the U. S. *Nevada*, when the comparison is more favorable to them.

It must not be forgotten that vessels like the Japanese *Mutsu* and the U. S. *Maryland* were designed several years later by constructors who had a good deal of war data to go upon and a much larger displacement at their command. That we could have produced something better than the *Queen Elizabeth* in the way of battleships if the building of such vessels had continued in this country is evidenced by the Hood. Although this ship was designed in 1916, she would not have been outclassed to any serious extent by the American or Japanese battle cruisers which were laid down several years later. The American ships, it is true, were to have been 1½ knots faster and would have carried 16 in. guns, but their protection was from all accounts much inferior to the *Hood's*. It is a pity that the plans for the "modified *Hood*" class, since abandoned, cannot be disclosed, for they would have shown our post-war designs to be second to none as regards boldness of conception and the practical adaptation of war experience.—*Naval and Military Record*, 5 September, 1922.

BUILDING CONTRACTS FOR NEW BATTLESHIPS.—There is something almost pathetic in the eagerness with which the industrial world is awaiting the release of the new battleship contracts. A few years ago the impending allocation of two new capital ships would have caused only a ripple of interest in labor circles, but today it is regarded as an event of supreme importance. The shipbuilding yards throughout the Kingdom are in urgent need of work. Not only is naval construction almost at a standstill, but there is also an unparalleled slump in mercantile tonnage, and the two phenomena, coming together, are having a most serious effect on the economic situation. In these circumstances it is not surprising that the placing of every new Admiralty contract should excite tremendous interest. Labor leaders who ordinarily condemn the building of warships on principle are as eager as "capitalists" to secure for their districts a share of the work, and in recent months those behind the Parliamentary scenes have been edified by the spectacle of Labor stalwarts pulling every wire

within reach to accelerate the laying down of the new super-dreadnaughts.

It has been evident for some time past that the Royal dockyards were hopelessly out of the running, in spite of the efforts made by their Parliamentary representatives. The heavy cost of enlarging the slips at Portsmouth and Devonport has been cited officially as a reason for disallowing dockyard claims in this connection, though Admiralty spokesmen have admitted that the slips will have to be lengthened sooner or later. The real grounds for the decision to build the new vessels by contract are probably to be sought elsewhere.

According to the latest information, the contracts for the new battleships will be awarded late this autumn. The drawings are ready down to the last detail, and the delay in placing the orders is simply due to financial causes beyond the control of the Admiralty. Rumors that the building of the ships is to be held up indefinitely or altogether abandoned in deference to the views of the anti-battleship school may be dismissed as inventions. We learn on good authority that no such step has ever been contemplated.—*Naval and Military Record*, 13 September, 1922.

OVERGROWN AIRCRAFT CARRIERS.—According to the *Navy* there is a strong probability that Japan will not persist with her scheme of transforming the half-built battle cruisers *Amagi* and *Akagi* into aircraft carriers. Our contemporary adds that Japanese constructors have prepared plans for a smaller type of carrier, which is thought to be more suitable for the purpose than the 33,000-ton vessels into which the battle cruiser design would have to be modified in order to keep within the limits of the Washington agreement. In another part of the same issue attention is directed to the menace that the low-flying aeroplane dropping small bombs —as the *Snipes* did in the recent *Agamemnon* test—will represent to the big aircraft carrier, which would be rendered unserviceable if her flying deck was badly holed by the explosions.

We have repeatedly called attention to this danger, which would be intensified if the ship were exposed to the fire even of small caliber guns using high-explosive shell. In our opinion it is a powerful argument against building these huge aircraft carriers, and one that may have influenced the Admiralty in designing the *Hermes* on a basis of only 10,950 tons. Provided such a ship meets the essential requirements, it would seem much the wisest policy to build three carriers of this type rather than a single ship of thrice the displacement. Another objection to the practice of converting battle cruisers which has been adopted abroad is belief, widely held in our service, that a really satisfactory aircraft carrier has to be designed as such, and cannot be improvised.

DESTROYER DEVELOPMENT.—The destroyer *Worcester*, having completed her trials at Portsmouth, is to replace the *Violent* in the Fourth Flotilla of the Atlantic Fleet. The new boat is the last of a very large batch, known as the *W* class, designed in the latter days of the war, and, in fact has been under construction since 1918. Her displacement is 1,325 tons, and with turbines of 27,500 shaft horsepower she is designed for a speed of 34 knots. In no type of naval unit has the relative growth of size been so great during the present century as in the destroyer class. If we hark back to the Navy Lists of twenty years ago we shall find that the biggest destroyer then in commission was the *Success*, of 350 tons and 6,000-horsepower.

The war did not result in any great increase in the tonnage of torpedo craft. In 1914 we possessed a large number of destroyers ranging between 900 and 1,000 tons, and of 24,500 shaft horsepower. The additional displacement since then has been applied to the mounting of heavier armament and the increase of fuel endurance. Before the war the latest destroyers carried three 4-in. guns, which were outclassed by the weapons

of the German submarines. The *Worcester* type mount four 4.7-in. guns, of fifty-calibers and very high muzzle velocity. They also carry about twenty-five per cent more oil than their immediate pre-war predecessors, which gives them a much wider sea-keeping radius.—*Naval and Military Record*, 18 September, 1922.

DISPOSAL OF CONDEMNED WARSHIPS.—Mr. Amery (to Mr. Thompson): "No decision has yet been made regarding the method of disposing of the vessels to be scrapped under the Washington Treaty, but every effort is being made to secure such benefit to the National Exchequer and assistance to employment as is consistent with the fulfilment of the Treaty. The Admiralty have discussed the question in detail with the National Federation of Iron and Steel Manufacturers and this body, at the suggestion of the Admiralty, is at present negotiating with the ship breakers. One battleship is being used as a target for gunnery and bombing experiments." (To Dr. Murray, who asked whether ten large ships, including the *Lion*, are being sent over to Germany in order to be broken up there), Mr. Amery said: "If it is possible to get ships broken up in this country we endeavor to do so."—*Army, Navy, and Air Force Gazette*, 26 August, 1922.

NEW BRITISH SUBMARINE.—The British public has begun to be interested in the submarine *X-1*, the biggest underwater craft ever designed, which is now rapidly reaching the launching stage in the housed-in slipway in Chatham dockyard. The very greatest precautions are being taken to prevent any information concerning her details becoming public, the end of the slip having been screened in order to prevent any sight of her hull being obtained from ships passing up and down the river Medway, but it is known that she is to be an epoch-making vessel, who embodies in her design all the lessons learned during the war and from careful examination of the German *U* boats that fell into our hands after the armistice. It is rumored that she is to be both bigger and faster than the famous *K* boats, which had a displacement of some two thousand six hundred tons submerged and a surface speed of twenty-two knots with turbine engines. In other respects these *K* boats were not altogether favorites, and the new vessel is understood to have eradicated all their defects and to be the very last word in design from every point of view.

At all events, all submarine construction is waiting upon her completion and trials, and two boats of the *L* type which we thought worlds of at the time of the Armistice, and which were taken down to Chatham dockyard for completion when the contracts with the private builders were cancelled, have been laid aside in a basin without any effort made to put in the work necessary. It is all very well to talk of super submarines and to build wonder vessels of this sort, but they are useful for their purposes and their purposes only, and it is hoped that neither the authorities nor the public will forget that during the war most of the really wonderful work was done by the little old boats of the *E* type, some of which were certainly not in their first youth by the time they had finished worrying the Huns.—*Our Navy*, 15 September, 1922.

FRANCE

COMMENTS ON THE MANEUVERS: FRENCH V. ITALIAN NAVAL EXPENDITURE: REVIVING THE DIRIGIBLE FORCE.—The series of maneuvers just concluded between the Salaun battle squadron and the Lequerré and Schwerer coastal forces are unimportant if judged by the size and number of ships that took part in them, but they have all the same provided splendid training for many thousand seamen and supplied valuable data, as they had for object no longer blockade or fleet action, but the study of the new problems of coastal defense under the changed aerial and ballistic conditions.

Some light has been thrown on the value of coastal flotillas for the command of territorial waters and of narrow passages. Strategic strongholds such as Brest are to become factors of offense of ever-increasing radius of action through the multiplication of large submarines, seaplanes and dirigibles, and small islands such as Ushant, Groix, and Belle-Ile will henceforth play a momentous rôle in the defense of coasts. But it has also been found that a numerous and very costly force will be necessary, together with a totally new organization, for effectively guarding the towns of the littoral against deadly surprise attacks by seaplane motherships, those capital ships of tomorrow.

The courteous remarks which Major Fea, of the Italian Navy, has been good enough to send to the editor of *The Naval and Military Record* concerning my articles imply (1) that France is leading the pace in the matter of armaments as compared with Italy, and (2) that no antagonism exists between the two navies. Arguments cannot alter facts. The former discrimination between military and naval expenditure has no longer any *raison d'être.* Army supercannon and aviation have become naval weapons, and it is a fact officially established that whilst the fighting expenditure of France in 1922 as compared with 1914 Budgets has increased by ninety per cent, the percentage of increase for Italy is 372 (Budget Report by Signor de Vava), 290 for Japan, 275 for Spain, 181 for Great Britain, and 174 for America. Since 1914 up to the present year the "Imperialistic" Gallic Navy has not laid down a single surface fighting ship, not even completed the pre-war destroyer *Gabolde,* whereas Italian flotillas have received twenty-two Italian-built destroyers and seven leaders, totally reversing the pre-war situation to the detriment of France. The antagonism it would be futile to deny of the strides and pretensions of the fine Italian Navy the hostility of the Italian Press says enough. Frenchmen, while full of goodwill for *la sœur latine,* cannot be required to be blind and deaf: better call a spade a spade.

Noteworthy change is taking place in the situation of the French Navy in what concerns the utilization of dirigibles and preparedness for aeronautical warfare. Up to the first months of 1922, complete neglect had been prevailing in what regards both the two zeppelins surrendered by Germany and the twenty odd serviceable dirigibles that had survived the war, this being the twofold result of lack of credits and of want of faith in the gasbags that have been profusely derided in service papers. Then French experts who made investigations in Germany and studied the possibilities of helium and of another non-inflammable gas, brought new facts to the knowledge of the Paris Admiralty, and when Admiral Lanxade (curiously enough a noted gunnery specialist), became head of the newly-created Aeronautical Department he decided to revive the gasbag service and to train dirigible crews in all heavier-than-air craft at all serviceable, and since May last, small and large dirigibles have been humming, as if by enchantment over all our naval bases in company with *avions de chasse,* to the great delight of military men who see in this aerial activity a compensation for France's maritime decline.

Although it is contended in service papers that the largest rigid, the 65,000 cubic-mètre *Dixmude,* is being totally neglected, it is certain that at no time previously have so many French aeronauts been simultaneously in the air for the purpose of experiments and exercises, and—a fact deserving of notice in the light of the experience of rival fleets—no accident has up to the present marred that continuous aerial practice. The improved Zeppelin *Méditerranée* (25,000 cubic mètres) has to its credit several interesting performances, including one of 700 kilometres at a fine rate of speed (up to 150k.m. per hour), with on board Commandants Yvon and Rivet and ten officers *de vaisseau.* The Brest soft dirigible *AT 10,* in commission for coastal exercises, has kept the air days on end, advancing 200 miles to sea to meet the Salaun fleet, and directing by wire-

less the repeated submarine attacks which accounted theoretically for the Toulon Dreadnaughts.

Interesting tests have taken place with new bombing seaplanes and avions-torpilleurs that have once more convinced eye-witnesses that *l'air domine la mer,* and that the determining factor in European waters is no longer a supreme battle fleet, but a fully-efficient bombing seaplane fleet, screened by swarms of avions de combat, and backed by an adequate number of aeronautical and chemical factories and training centers—that is, a well-thought-out offensive organization capable of promptly making up for whatever losses are incurred and of periodically throwing into the air new squadrons, completely equipped for action over enemy strategic centers. It is easy to imagine the revolution in warfare which these new ways will mean. Formerly war was decided by one terrific blow dealt in fleet action, causing the issue to be a foregone conclusion. Henceforth no Trafalgar, no Lissa, Tsushima, or Jutland, but a wearing-out game, an unending fight, mostly baby-killing, extending over months, in which the advantage will go to the side offering the least vulnerable target. These changes were bound to come, but their advent has been hastened by the Washington farce. *Est pris qui croyais prendre.*—J. B. Goutreau in *Naval and Military Record,* 30 August, 1922.

SUBMARINE TRAINING.—Submarine training has been resumed on new lines. It comprises four branches of preparation, viz., attack and defense of a fleet at sea, endurance cruises, mine-laying, scouting, and wireless signalling in co-operation with seaplanes and dirigibles. Later, the utilization of the gunpower of submarines will be the objects of tests and exercises. The second-class submarines *Shilemans, Carissan, Reveillé, Bellone, Gergone,* and *Daphné* of the Channel Station, have had a few weeks' strenuous practice with the battle fleet, continuously attacking and dodging surface and aerial counter-submarines, and were commended for efficiency.

The *Toulon* and *Bizerta* submersibles in commission are, similarly, pursuing a methodical plan of training at sea. The ex-German *Marras* and *Autric,* of 850-1,150 tons, have successfully accomplished a 50-days' endurance voyage from Brest to Toulon viâ Casablanca, carrying out on the way a series of signalling exercises by day and by night and of depth charge and gun experiments in co-operation with the aerial force. Importance attaches to endurance tests of this sort, that are to become a regular feature in submarine training, with a view to insuring communications with the French colonies in war time. German submarines, though lacking in finish, are robust and reliable, and French seamen and constructors alike have learned something from them.—*Naval and Military Record,* 6 September, 1922.

MARINE CHARTS.—The sinking of the battleship *France* through the ripping open of the hull by uncharted rocks while she was proceeding slowly along the Teignouse passage into Quiberon Bay, has naturally brought the Hydrographic Department of the Marine under severe criticism. The explanation that the battleship must have struck some unknown rocks was at first received with scepticism, as it appeared almost impossible that such obstacles in home waters should have escaped detection. Divers, however, reported that the rocks existed, and that the top of one had been broken off by the impact. On behalf of the Hydrographic Department of the Marine it is explained that by the usual method of taking soundings it is quite possible to miss isolated rocks emerging from the sea bed, and it is stated that the only way to locate them is to draw a hawser along the bottom, which is to be done now that the disaster to the *France* has shown the necessity of verifying the charts of the particularly rocky coast of Brittany. The *France* was a super-Dreadnaught of

28,500 tons, launched in 1912, and, except for the *Béarn*, which is not yet in commission, was the most powerful unit in the French navy. A preliminary investigation by experts shows that the re-floating of the battleship will be a very expensive operation, even if it can be done successfully, and in the event of the vessel being regarded as a total loss it is believed that the Government has no intention of replacing it, although the question of bringing the tonnage of capital ships up to the limit allowed by the Washington Conference can only be settled when the new program of naval construction comes up for discussion.—*The Engineer*, 8 September, 1922.

BOOK REVIEW.—*The Conduct of War*, an interesting article in the August, *Revue Maritime*, is contributed by the well known Capitaine de frégate R. Castex, of the French naval general staff, on *La Conduite de la Guerre*. The author aims to show the importance and necessity of a central direction of naval operations in wartime, and to consider the effectiveness of the present arrangement in France whereby this central direction is vested in the Minister of Marine acting through a permanent naval general staff (*état major général*).

To show the necessity of this central direction or control—over the commanders in chief in the various fields of operation—he points out: (1) that naval forces nearly always operate in several widely separated fields; (2) that only on land and at the seat of government is it possible to gather together the knowledge and information essential to the general direction of all naval forces; (3) that the value of such control has been recognized in most naval campaigns of history, as witness the authority of the British Admiralty over Nelson, of the American "Strategy Board" over Sampson in the Spanish War, of the Japanese General Staff over Togo, and of the various navy departments over the forces at sea in the World War.

In short, an efficient system for the general direction of naval operations in war should fulfil the following conditions:

(1) Create and firmly organize a central direction of operations,

(2) Bring about a governmental organization which will enable this central direction freely and fully to carry out its important functions,

(3) Arrange and facilitate the relations between the central direction and the government.

Turning to the situation in France, the author notes that it is more difficult in a republic than in a monarchy to secure the proper relations between the government and the military direction. In a monarchy, such as Germany, the ruler is at least nominally head of the state, and the military staffs under him suffer less from unwarranted interference on the part of governmental leaders. For the control of military operations in France during the World War, various systems were tried. At first the commander-in-chief on the Western Front directed all operations; then with the creation of forces in the East and elsewhere and the problem of co-operation with Allied forces, the Ministry and in particular the Minister of War took over general control; then expert professional direction reasserted itself with the appointment of General Joffre as "technical counsel in the direction of the war" (1916); then came the appointment of Petain as Chief of General Staff in 1917, with more extensive advisory functions; and finally the appointment to this position of Foch, who eventually became commander-in-chief in reality.

In the French Navy, according to the author, a more satisfactory arrangement existed from the outset. In his view the ideal system would provide that the minister of marine should "command and administer the naval forces." This insures the direction of operations from the center of government, and the essential close co-operation between the government and the military direction, the *plan of operations* being recognized

as only a part of the *plan of the war*. The minister of marine's direction of naval operations, however, should be exercised through a general staff organized completely in time of peace to carry out its duties in time of war. In time of war, aside from necessary reinforcements, the personnel of the staff should remain unchanged, that is, until a change of leadership or policy were demanded.

The French system at present (Decrees of December 27, 1921) differs somewhat from this ideal. The admiral at the head of the general staff in peace becomes active commander-in-chief of forces at sea in time of war, his place on the general staff being taken by another. This modification the author is inclined to criticize, although it affects "only the summit of the edifice." In his opinion such a change, at such a time, might give rise to difficulties. His preference, to repeat, is for a system by which, in the army as in the navy, the minister is generalissimo or admiralissimo by legal right, and the chief of general staff is commander-in-chief in fact, with no change of personnel in passing from peace to war.

The article, of which what precedes is only a very brief summary, contains abundant historical illustrations, and is of great value in the study of this all-important problem.

JAPAN

TWO NEW CRUISERS TO BE BEGUN SHORTLY.—Tokio, Saturday.—The construction of two 7,500-ton cruisers will be begun shortly in Japan. The vessels will be named respectively the *Kinugasa* and the *Furutori*.—Reuter.—*Naval and Military Record*, 23 August, 1922.

AMERICAN BUILT UNIT FOR JAPANESE NAVY.—His Imperial Japanese Majesty's ship *Kamoi* left the yard of her builders, the New York Shipbuilding Corporation, for her trials at the Delaware River Breakwater on September 6. The ship, of 13,000 tons deadweight displacement and 28-ft. draft, is electrically driven, using General Electric motors and fitted with water tube boilers and is expected to make 15 knots. On her delivery she will be a supply ship for fuel oil and coal to naval vessels of the Japanese Navy and will carry a crew of 185.—*The Nautical Gazette*, 23 September, 1922.

JAPAN CUTS EXPENSES OF ITS ARMY AND NAVY.—Tokio, Sept. 12.—There appears to be a real intent on the part of Japan to retrench naval and military expenditures. The budgets for the two departments for the fiscal year 1923-24, made during the Washington conference, have been announced, showing a reduction of approximately $57,500,000 from the present fiscal year.

Other economies are slated by Premier Kato and it is believed that some will be carried out during the next year, but it will be the year 1924-25 before the real financial results of the Washington conference and of any subsequent reductions will be apparent in Japan.

The naval budget for the next year shows a reduction of $37,500,000. Ordinary expenses are listed at $60,000,000, a reduction of $7,500,000, and extraordinary expenses are listed at $99,000,000, a reduction of $30,000,000. In the army budget ordinary expenses are figured at $92,500,000, a reduction of $6,950,000, and the extraordinary figure is $16,500,000, a reduction of $12,950,000.

This means that instead of as in the past year, when forty-nine per cent of the national income went into the military coffers, only thirty-nine per cent of the national income will be devoted to the navy and army in the next fiscal year.—*Baltimore Evening Sun*, 12 September, 1922.

NEW JAPANESE PROGRAM EXPLAINED.—Japanese papers lately to hand contain more complete details of the modified naval program than were

given in the cabled summaries. A statement issued by the Navy Department reaffirms the intention of Japan not only to observe scrupulously the clauses of the Limitation Treaty as to battleships and aircraft carriers, but to conform also to the spirit of the Treaty with regard to the building of supplementary vessels. It is explained that the bill providing for a squadron of eight battleships and eight battle cruisers was approved by the Diet in the extraordinary session of 1920. This bill authorized the following auxiliary vessels for completion by 1927:

(a) Light Cruisers.—*Tatsuta, Tenryu,* and fifteen other vessels which had either been built or were already on order, making seventeen in all. New construction projected: Nine vessels, including four of 8,000 tons. Total, twenty-six ships, aggregating 146,750 tons.

(b) Destroyers.—*Kawakaze, Tanikaze, Nara, Kuwa,* and fifty-three other boats already built or ordered, making fifty-seven in all. New construction: First-class boats, twenty-eight; second-class, fifteen. Total, 100 boats, aggregating 102,566 tons. (Another version gives ninety-four as the total.)

(c) Submarines.—Vessels already built or ordered, forty-seven in all. New construction, forty-six. Total, ninety-three submarines, aggregating 82,852 tons.

It is then explained that in order to obtain greater homogeneity and more up-to-date design the various types of vessels not yet laid down are to be enlarged, while on the other hand a reduction is to be made in the number of new units and a further saving effected by the suppression of obsolete ships. As amended, therefore, the program of new construction now embraces the following:—

(a) Cruisers: four ships of about 10,000 tons and four of about 7,000 tons. Total, eight ships aggregating some 68,000 tons.

(b) Destroyers: twenty-four boats of the first class, aggregating 33,600 tons.

(c) Submarines: twenty-two boats (believed actually to be twenty-four, aggregating 28,600 tons.

With regard to expenditure, the statement points out that in the original plan there was a margin of only twenty per cent to meet the appreciation of prices, but in the modified scheme the percentage will be revised to make good the deficit. It is expected, therefore, that the new plan can be executed within the same financial limits. To this end the following vessels have been deleted from the original project: One cruiser, thirteen destroyers, and twenty-four submarines, representing an aggregate reduction of 13,399 tons—a reduction which, as the Navy Department emphasizes, sufficiently refutes the rumor that Japan contemplates an increase of her auxiliary ships in the post-Conference era. The scheme is to be completed by 1927, but the amount of new construction to be put in hand each year will be governed by the financial conditions prevailing, and in the meantime superannuated vessels will be struck off the list as they are replaced by new ships. When the exchange of ratifications of the Limitation Treaty has been concluded, other measures of retrenchment are to be adopted. These include the reduction of Maizuru from a naval base to a fleet station of secondary rank, the abandonment of Port Arthur as a secondary fleet station, and a decrease of about 12,000 in the strength of the Navy's personnel.—Hector C. Bywater in the *Naval and Military Record,* 23 August, 1922.

GERMANY

A GERMAN VIEW OF CRUISER DESIGN.—Concluding his interesting survey of modern light cruisers in the latest issue of the *Marine Rundschau,* Herr Ahnhudt, the distinguished German naval constructor, foreshadows the probable development of the type in the years ahead. Observing that British cruisers of the *C* and *D* classes are fitted with a small hangar for

aeroplanes, he considers it surprising that this feature has not been adopted for all cruisers in view of the great importance of aerial scouting. Each vessel of the American *Omaha* class is equipped to carry four aeroplanes on deck; the method of launching them has not yet been explained, but presumably it will be by catapult. Seeing that the British *Raleigh* cruisers were designed for long ocean cruises and patrolling wide areas of seas, it is remarkable that they are not provided with the means of carrying one or more planes, which would be of the utmost value to such ships in their duty of protecting commerce. As Herr Ahnhudt points out, however, to have an aeroplane always ready for flight it is not sufficient to carry it on the open deck, where it would hinder the working of the guns, and consequently a fixed hangar must be constructed for it. With regard to the evolution of the fleet cruiser, as distinct from types specially designed for service overseas, Herr Ahnhudt does not think the displacement ought to exceed 4,000 tons, and he would be prepared to give up armor protection in order to get high speed and adequate armament. Britain, he reminds us, moved in this direction as far back as 1907, when she built the *Swift*, an unprotected vessel of 2,200 tons, 35 knots speed, and four 4-in. guns. Owing to the high cost, however, this type was not repeated.

More lately Britain has been turning out flotilla leaders of 1,800 tons, with a trial speed of 36½ knots, reduced to 31 knots at full load, and a broadside of five 4.7-in. guns and six tubes. These ships may represent the beginning of a new type of small fleet cruiser. Italy is building similar vessels, and the 2,300-ton "destroyers" constructed in Germany during the war belonged to the same general type. It would therefore appear, according to Herr Ahnhudt, that the largest class of destroyers may eventually grow into flotilla leaders, while the fleet cruiser proper is becoming too large for its original duty of co-operating with destroyers, and thus losing its *raison d'etre*. In the case of cruisers intended for duty overseas, large dimensions are an advantage, for which reason these vessels would probably grow steadily in size were it not for the heavy cost of construction. The *C* class cost £750,000 each, the *D* class £870,000, the *Raleigh* £1,500,000, and the U. S. *Omaha* 7½ million dollars without her guns. Therefore, notwithstanding the cry of every Navy for more cruisers, the number of these expensive vessels is likely to remain small, though every effort will be made to improve their protection. A further rise in displacement will bring us back to the medium armored cruiser, which a few years ago was thought to be extinct. As, however, the task of hunting down commerce-raiders necessitates the employment of many ships, and individual strength cannot compensate for lack of numbers, Herr Ahnhudt foresees the introduction of a new type of small ocean-going cruiser. His remarks have a special interest for this country, since the safety of its vast floating commerce must always be our chief naval preoccupation, and such protection can only be afforded by an adequate fleet of cruising ships.—*Naval and Military Record*, 23 August, 1922.

GERMAN WATERS NOW CLEARED OF MINES.—Berlin, Sept. 26.—The work of clearing the German seas of dangerous mines, planted during the World War, has been successfully completed without the loss of a single life.

German mariners, ending their three and a half-year task, today announced that the 47,000 English mines, the 10,000 German mines and the hundreds of Russian mines planted in the North and Baltic seas have been taken from their watery beds and that the seas are free again.

In February, 1919, German sailors began their hazardous work. Their first effort was to clear a lane wherein ships from Northern European ports, Kiel, Hamburg and Dantzig, could safely ply.—*Baltimore Evening Sun*, 26 September, 1922.

UNITED STATES

BOARD TO APPRAISE SHORE ESTABLISHMENT OF THE NAVY: The board recently appointed by Secretary Denby and which will meet on October 2, is acting under the following precept.—"The Board will recommend the bases, yards and stations it considers necessary to the maintenance of the efficiency of the fleet and its effective operation in peace and war. It will report specifically its recommendations as to:

(a) The shore stations and parcels of improved and unimproved real-estate now in the custody of the Navy Department which it considers will not either in peace or war contribute to the maintenance of the efficiency of the fleet or to its effective operation.

(b) The shore stations that under present conditions it considers should be kept in operation for the efficient maintenance and effective operation of the fleet.

(c) The shore stations that should be retained but kept closed or on a reduced operating basis yet ready for service in the event of an emergency.

(d) Shore stations in addition to those recommended under (b) and (c) above that are in the opinion of the board necessary for the effective operation of the fleet in peace and war including recommendations as to their location and characteristics.

(e) Shore stations that may be closed, reduced or disposed of when the shore stations recommended under (d) have been created."

TORPEDO PLANE TESTS.—The possibilities of the torpedo plane have been well known for several years but the first practical test of actual torpedo firing from airplanes was held on the Southern Drill Grounds on Wednesday, September 27. Eighteen planes, each equipped with one 18-inch Whitehead torpedo, comprised the attacking force, which was assisted by a dozen or more scouting planes and one blimp. The battleships *Wyoming, Arkansas* and *North Dakota,* steaming in line, comprised the target group.

The practice was held to test the equipment which has thus far been developed, and to furnish a basis for the development of torpedo plane tactics. The conditions imposed by the rules preclude the drawing of any reliable conclusions as to the value of the torpedo plane as a weapon. The tests mark another step in the practical development of aerial warfare.

Vice Admiral John D. McDonald, commanding the battleship force, Atlantic Fleet, sent the following despatch to the Department upon completion of the practice:

"Torpedo plane practice completed at 11.17 a.m. under most favorable conditions of weather and sea. Zero hour 9.00 a.m. Dirigible observed at 9.35 a.m. keeping low over battleships during the practice. Scout planes observed 9.55 also keeping in vicinity of battleships. At 10.18 sighted torpedo plane squadron and maneuvered at high speed to keep planes astern. Plane squadron divided and attacked from both flanks, battleships maneuvering to keep planes ahead and astern. *Arkansas* sustained seven hits out of seventeen torpedoes fired, all fired close aboard."

The Associated Press correspondent, who witnessed the tests from the bridge of the *Wyoming,* described the practice as follows:

"Under most favorable conditions that gave attacking force practically ninety per cent advantage, three squadrons of torpedo planes today fired seventeen torpedoes at battleship *Arkansas* and scored seven hits, theoretically sinking that ship. The test was held under the most favorable weather conditions, the planes coming within a few hundred yards of the battleships and discharging their torpedoes at will, the dreadnaughts depending only upon the skill of their officers and their rudders to evade

theoretical destruction. The planes in leisurely fashion attacked the target ship *Arkansas,* while the fleet was steaming at high speed. When the planes were sighted the battleships maneuvered to keep them ahead and astern and avoided a number of hits fired point blank at battleships."

The torpedo planes used in these tests were old planes converted for the purpose, yet they held up very well. All but one fired their torpedoes—the one failure being due to trouble with the releasing mechanism. Three of the planes had forced landings on their return trip, but the Air Station at Hampton Roads reported them all safe.

THE NAVY'S AIRCRAFT CARRIERS LEXINGTON AND SARATOGA.—Under the provisions of the Act of Congress which provided for the conversion of two battle cruisers into aircraft carriers, work has been resumed on the hulls of the U. S. S. *Lexington* (*Fore River*) and U. S. S. *Saratoga* (*Camden*). Final plans have not been approved by the Department but they have been practically completed by the Bureau of Construction and Repair.

As battle cruisers these vessels had a designed displacement of 43,500 tons and a speed of 33.25 knots, with length 874 feet, beam 101 feet 8¼ inches and mean draft 31 feet. The powerplant which will remain unchanged, will develop 180,000 H.P. through 16 boilers and General Electric turbines with electric drive.

While the Department is not yet ready to announce the details of their plans for the *Lexington* and *Saratoga,* Articles IX and X of the Limitation Treaty limit the tonnage to a maximum of 33,000 tons, and limit the armament to not more than eight guns of a caliber larger than six-inch while the maximum size of guns permitted is 8 inch.

U. S. S. *Langley*

The U. S. S. *Langley* is now on her shakedown cruise preparatory to taking her place in the fleet as the Navy's first airplane carrier. The new *Langley* was originally built at Mare Island as the collier *Jupiter*—famous as the first large ship in the world to have electric drive—and launched in 1912. The work of conversion was done at the Norfolk Yard.

The flying-off deck of the *Langley* is 520 feet long and 65 feet wide. Telescopic masts 50 feet high are housed like periscopes when not up in position. The ship is a combined floating aviation field hangar and repair plant for aeroplanes. The repair plant includes an armory, carpenter and wing repair shops, machine shop, blacksmith shop and foundry, metal shop and torpedo repair shop, besides photographic and aerological laboratories. There is an electric elevator for lifting fuselages and wings from the main deck to the flying-off deck. When lowered the top of the elevator forms a part of the flying-off deck. There are two electric traveling cranes on the main deck for shifting planes fore and aft, and there are four cranes on the topside for hoisting planes from the water to the flying-off deck. The navigating bridge is below the flying-off deck, and there are "T-booms" along the ship's sides for the auxiliary radio antennas. There are two catapults on deck, one forward and one aft—there is a testing room and stand for aeroplane engines, a pigeon loft, a kite balloon filling station, and all the features which make a large modern naval vessel, vertually a floating city. The ship has been converted from a coal burner to an oil-burner, and her armament is four 5-inch guns. The ship is fitted to accommodate ten ship's officers, thirty-five commissioned and warrant aviators, thirty-one chief petty officers, and 229 men for the crew.

The U. S. S. *Wright*

The U. S. S. *Wright,* at present flagship of the Air Force Atlantic Fleet, is a seaplane tender and kite balloon ship. The *Wright* was built at Hog Island and was one of the Shipping Board's type *B* ships. She

was converted by Tietjen and Lang, Hoboken, N. J. Her dimensions are length 448 feet, beam 58 feet, mean draft 31 feet, displacement 14,240 tons. Her speed is 15 knots, furnished by six B and W oil-burning boilers and General Electric geared turbines of 6,000 horsepower. Her armament consists of four 5-inch guns, and she has accommodations for her captain, aviation detachment commander, twenty-eight wardroom officers, twenty junior officers, twelve warrant officers, sixty chief petty officers and a crew of 450 men.

BRITISH AND UNITED STATES NAVAL AIR SERVICES.—In commenting on the deficiencies of our naval air service, several writers have pointed with envy to the more advantageous position of the United States fleet, which has entire control over its aviation branch and is apparently well supplied with pilots and machines. It is, however, rather doubtful whether American naval flying is in quite so prosperous a condition as the superficial facts indicate. Although the present establishment of machines is larger than ours, complaints are heard of a shortage of up-to-date models in certain types, and it is also said that the paper strength includes many planes which for one reason or another—deterioration or obsolete design—are practically useless. Where the American naval air wing appears to lead is in respect of fighting machines and torpedo planes, types to the improvement of which special attention has been devoted. Several planes now in commission are capable of carrying a 21-in. torpedo at a speed and altitude that would be fully equal to war requirements. The latest combat machines are also of a most efficient type. For the time being, however, the development of naval flying is sorely handicapped by the lack of aircraft carriers. The ex-collier *Langley* is the only vessel of this type at present available, and her speed is much too low to permit of her co-operating with the fleet under all conditions. For this reason American naval men are anxious that the two battle cruisers selected for conversion into carriers shall be completed with all speed, but if Congress persists in its parsimonious attitude and continues to dole out money at the present rate it will be three or even four years before the ships are ready.—*Naval and Military Record*, 23 August, 1922.

TEAPOT DOME OIL DEAL SOUND.—One of the sensational "issues" in the 1922 political campaign will be the contract negotiated by Secretary of the Interior Albert B. Fall, acting for the Navy Department, for the development of Naval Reserve, No. 3, Teapot Dome, Wyoming, by the Mammoth Oil Company, a Delaware corporation, of which Harry F. Sinclair is the head. It is the evident intention of the Democratic orators who are attacking this contract, to read into the situation another Ballinger-Pinchot affair, and thus, at the start, to create a prejudice against the contract, which will operate conveniently in place of fact. If this is the purpose, it might be well for the promoters of any campaign of misrepresentation to pause and recall that subsequent investigations, both by Congress and by secretaries of the interior of a different political faith, have disclosed that the course of Mr. Ballinger was wholly proper and one that any other sound business man would have pursued, who was as familiar as Mr. Ballinger with the circumstances. But prejudice is an adroit and dangerous political weapon, and it was with some little prejudice in favor of the criticisms that your correspondent entered upon a personal investigation of the circumstances of Teapot Dome and the Sinclair contract. As a result, he is able to set forth certain facts which the critics have either distorted or suppressed.

It is a matter of familiar history that owing to failure to drill suitable offset wells in Naval Reserves Nos. 1 and 2, California, the Government has suffered a loss of 6,800,000 barrels of royalty oil through drainage. Teapot Dome lies south of and adjoins the great Salt Creek oil field in

Wyoming, and exactly the same loss from drainage was threatened by private operations in the Salt Creek field to the north when the Harding Administration determined that naval reserve oil history should not be repeated. To this end Secretary Fall cast about to secure a development of Teapot Dome which should end the danger and secure to the Navy an adequate supply of oil, both for the present and for future use. It was, of course, argued with respect to the California fields that the Government would suffer no loss if the situation were let alone, but men like Mark L. Requa and Franklin K. Lane urged that the Navy should protect its reserves by drilling wells, and the sequel proved that their advice was more than justified. According to Dr. H. Foster Bain, director of the Bureau of Mines, "delay in properly protecting the boundaries of the reserves (Nos. 1 and 2, California) against drainage by wells on adjoining lands has resulted in a loss of ultimate total production from the reserves as a whole, as most conservatively estimated, as follows: Total production, 22,000,000 barrels; Government royalty, 6,800,000 barrels; value of royalty, $8,800,000."

Teapot Dome is supposed to contain, at approximately the same depth, the same oil-bearing sands developed in the main Salt Creek structure. For this and other reasons, according to Government experts who have studied Naval Reserve No. 3, the same presumption of loss through drainage exists as with reference to the California reserves. It is to be borne in mind, moreover, that another dangerous factor is the loss of gas pressure, the propulsive power of the oil, which loss leaves the oil inert and incapable of coming to the surface except through expensive pumping or artificial air pressure. As Secretary Fall has said: "The undeniable facts, insofar as human judgment can ascertain them from expert evidence and otherwise, are that at least a certain portion of the north part of Naval Reserve No 3, the Teapot Dome, is now, or will be, disastrously affected through drainage by the drilling upon the lands outside the naval reserve, which drilling is now being carried on from day to day. Such drillings upon such lands is in accordance with the terms of the law itself (law of February 25, 1920), and those conducting such operations are protected by the law."—*Boston Evening Transcript*, 9 September, 1922.

MERCHANT MARINE

UNITED STATES SHIPPING POLICY.—When the Great War came to an end and the German Fleet had virtually disappeared it was popularly supposed in this country that the era of naval competition was past and that the British flag would henceforth wave in uncontested supremacy over the seven seas. This, of course, was a delusion, as we soon discovered. While Europe was preoccupied with her war troubles, great naval projects had been maturing in America and the Far East, and a rivalry which had as its original object the mastery of the Pacific now threatened to alter the world-wide balance of naval power much to our disadvantage. In 1919, both the United States and Japan were at work on huge shipbuilding programs, while the dockyards of Europe were comparatively idle. Had the American scheme been carried out in full it would ultimately have placed the United States in possession of the strongest fleet in the world. Such a prospect could not be viewed with equanimity on this side of the Atlantic. Anxious as we were to maintain those cordial relations with our American cousins which common suffering and sacrifice had fostered during the war, it was realized only too clearly that to accept a subordinate rank in the naval hierarchy would be fatal alike to the prestige, the interests, and, ultimately, to the existence of the British Empire. On the other hand, the thought of entering into a naval competition with the United States was wholly repugnant to our people, irrespective of the tremendous financial strain it would involve. In these circumstances the proposal of President Harding to discuss the question of future naval strength

at a Conference of the Powers chiefly concerned was warmly welcomed here, and it can safely be said that no nation tried harder than Great Britain to make the Washington meeting a success. That it was on the whole a distinct success, especially as regards the limitation of naval armaments, is admitted everywhere save in France, where the Conference is still referred to as a "maneuver" and a "farce." If those terms are justified, we can only say that it is a pity the diplomatists of Europe have not staged a few maneuvers and farces of the same description.

With the signing of the Limitation Treaty all danger of a battleship competition between ourselves and America has been removed. That alone is a most gratifying achievement, a triumph of statesmanship without parallel in modern history. But although the United States has abandoned the ambition it seemed to entertain during the war of becoming the dominant naval Power, it has by no means given up the plan, conceived at the same time, of building up a great mercantile fleet and having the major proportion of its seaborne trade carried in American bottoms. On the contrary, strenuous efforts are being made to realize this aim by legislative and other methods designed to buttress American shipping against foreign competition. In pursuing this policy the United States is acting well within its rights, and, although the wisdom of certain measures which it has taken may be open to question, outside criticism is called for only if and when those measures prove unduly detrimental to the legitimate interests of other countries. The conclusion reached by the directors of American policy is that high wages and heavier running costs impose such a handicap on their shipowners that without preferential treatment of a very definite kind there is no hope of maintaining the national merchant navy on a profitable basis. Hence, the various legislative measures which have been introduced recently, including the Ship Subsidy Bill, and the vigorous propaganda carried on by the U. S. Shipping Board to arouse popular enthusiasm for the Government's plans.

In British shipping circles the conviction still prevails that if America's mercantile marine needs all these artificial aids to keep it alive, its existence will not be of long duration, for sooner or later the American people will grow weary of paying heavy subsidies to an industry that cannot support itself. From the British point of view, the most unfortunate feature of American shipping policy is the somewhat aggressive attitude displayed by those who control it. The exceptionally able correspondent of *The Morning Post* in Washington, credits Mr. Lasker, who is chairman of the Shipping Board, with believing that the easiest way to rehabilitate the American merchant marine is to antagonize British shipping interests wherever possible, and use the power of his Government in a way which would not be sanctioned by private interests competing for trade. It is further suggested that some connection may exist between this policy and incidents such as that at Newcastle-on-Tyne, where the American Consular officials were charged with having abused their position in order to obtain business for vessels of the U. S. Shipping Board. This case was deemed sufficiently flagrant by the British Government to justify the withdrawal of the exequaturs of the officials concerned. One can only hope that the good sense of the Americans will soon convince them of the futility of attempting to bolster up their shipping interests by such methods. The Yellow Press talks wildly of the propaganda which British shipowners are alleged to be conducting against the growth and development of the American merchant marine, but Sir Frederick Lewis, the president of the Chamber of Shipping, has made it clear that there is not one word of truth in this allegation. He ventured to remark, however, apropos to recent shipping legislation in the States, that "restrictions on freedom in commerce are surely retrograde movements, and not progressive." That is certainly the general opinion on this side of the Atlantic, and we shall be surprised if it does not eventually find acceptance on the other side as well.—*Naval and Military Record*, 13 September, 1922.

LIBELING OF SHIPS UNAVOIDABLE.—The Shipping Board's action in libeling the vessels of the Atlantic Gulf and Pacific Company has excited much comment in shipping circles this week. It is an indication of the Board's policy in regard to the speculative pioneer purchasers of Government tonnage, and similar procedure is expected to be followed in connection with other companies in like circumstances.

In an article appearing in the August 12 issue of *The Nautical Gazette* it was pointed out that the policy of selling the notes made by pioneer purchasers in favor of the Board to cover the unpaid portion of the price of their ships, was an unwise one. It was contended that the Government should either demand the payment of these notes in full or regain possession of the ships. Since that time the Shipping Board, by its action in libeling the Atlantic Gulf and Pacific Company's vessels, has given unmistakable evidence of the course it intends to pursue in these matters.

The story of the Board's dealing with this company is a long chapter of patient waiting for the fulfillment of promises. It is the first time that the transactions with any one of the pioneer purchasers have been made public, and the revelation is a justification of the Board's treatment of this concern.

Because of its desire to have its existing services continued uninterruptedly and to develop owning operators of American ships the Board has granted extraordinary indulgence to the Atlantic Gulf and Pacific Company and other pioneer purchasers. When the present Board assumed office over a year ago it was found that the Atlantic Gulf and Pacific Company had obtained from the previous Board six ships for which it agreed to pay $9,314,137 and of which amount only $195,000 had been paid. Under this contract six ships, of a total of 54,000 tons, which were the very cream of the Board's fleet were delivered to this company with a down payment of two and a half per cent of the purchase price. This constituted delivery of these ships at a little over three dollars per ton, and no cargo ships have been delivered to any one else on a comparable low basis of down payment.

Since the present Board has been in office the company has not paid one cent of principal nor one cent of interest, so that by the payment of $195,000 and nothing else the company has remained in possession and operation of ships, which if marked down to present day values, would be worth approximately $2,000,000.

The Shipping Board had been constantly hoping that with this and other so-called "pioneer ship purchasers" who owe large sums on their ships some arrangement could be worked out whereby the Government would obtain at least current market prices for its property, and negotiations have been carried on continuously with the various companies to this end, the Shipping Board tendering ultra-liberal settlements. In no case has the Board asked its delinquent ship purchase debtors who were financially involved to pay it anything like the face of existing obligations.

These negotiations have dragged along, some companies settling on this basis; some few have not, but none of the companies that have not settled have paid the Board anything in the way of interest or principal. The Board has not pressed its debtors threateningly during this period, because its object has been to accomplish settlement and it wished to do nothing to embarrass its debtors from raising moneys.

Finally the Board was forced to conclude that those who had not settled were in fact drifting along without paying interest or principal to such an extent that a time limit had to be arrived at; many of these companies, the Board learned, not only could not raise the moneys to pay for their ships, but would be unable to remain financially sound for purposes of operation, and thus the Government's ships would be laid open to libel.

When the Board, after unremitting patience and sympathetic indulgence, reluctantly came to this conclusion, it determined that between Septem-

ber 1 and 15, either the amounts owing it must be liquidated on an agreed liberal settlement basis by its debtors, or the Board would have to proceed to bring about the return of its ships.

In the case of the Atlantic Gulf and Pacific Company the Board was forced to take action when it did, because it learned that if it gave the company indulgence until the deadline time, the ships most likely would be libeled by outside maritime creditors.—*The Nautical Gazette,* 2 September, 1922.

SUBSIDIES FOR SHIPOWNERS OR SHIPBUILDERS.—The inability of the war afflicted countries of Europe to exchange goods with their neighbors or nations overseas on the same scale as before hostilities began, has caused a great shrinkage of international trade, with the result that a large proportion of the world's merchant fleet is idle for lack of cargoes. The chief sufferers from this state of affairs have been the shipping and shipbuilding industries which are depressed to an extent probably never before witnessed. This has led the shipping interests in most of the leading maritime states to ask for some form of Government aid to tide them over until normal trade conditions return. In the United States subsidies to shipowners is the projected measure of relief, while in Italy, Japan and elsewhere the policy of granting subventions to shipbuilders seems to be most in favor.

The drawback to our Federal administration's plan of indiscriminate subsidies to all American shipowners irrespective of the modernness or obsoleteness of their vessel fleets is that it would accomplish nothing for the advancement of our merchant marine. It encourages the retention in service of the vessels now afloat without regard to their age or efficiency and offers no premium for the replacement of existing units by up-to-date ships. In the opinion of many competent observers, as revolutionary a change is impending from steamships to oil-driven motorships, as took place around the middle of the last century, when sailing vessels were superseded by steamers. Instead of encouraging this change in the case of our own merchant marine, the administration's ship subsidy bill would have a directly opposite effect, for it treats all American flag ships on the same footing, whether they are obsolete wooden craft or modern internal-combustion engined freighters.

By way of contrast the experts appointed by the Japanese Government to consider the best means of rehabilitating the nation's ocean services and meeting the threatened competition of American subsidized ships have recommended the building of a number of new fast Japanese merchantmen aggregating 500,000 tons, whose construction is to be made possible by a series of Government loans bearing a low rate of interest. This would lead to a revival of Japan's shipbuilding industry, and give the Mikado's realm the most modern and most efficient passenger and freight carriers. The Italian Minister of Marine is also of the opinion that any Government money devoted to the furtherance of his country's merchant marine should be expended on the construction of new ships, which would have the advantage of relieving unemployment and of supplying Italy with an adequate merchant fleet when trade returns to normalcy.

In giving subventions to shipbuilders, instead of shipowners as proposed in this country, Japan and Italy would have as a result of their expenditures a number of modern liners and cargo carriers of the most efficient type. But as Signor Luigi Ernandi pointed out in a recent article, the future cannot be gauged with certainty. In a time of depression like the present, it is impossible to foresee the kind of vessel that will be most required when trade again attains its normal volume. In building vessels by guesswork instead of in response to an actual demand, one runs the risk of turning out merchantmen not desired by anyone and which may have to be sold at a heavy loss if they can be marketed at all. Despite

the force of this objection, Government aid to shipbuilders would result in something tangible towards the upbuilding of a merchant marine, which is more than can be said of most subsidies to shipowners.—*The Nautical Gazette*, 9 September, 1922.

BOARD DISPOSES OF ITS WOODEN SHIPS.—On a bid of $750,000 from George D. Perry, a lawyer of San Francisco, the Shipping Board has disposed of 226 wooden ships which comprise the greater part of its entire wooden fleet of 285 vessels which cost approximately $300,000,000. A few of the wooden ships still remain in the hands of the Board but with this sale the fleet has been practically disposed of. There were ten bidders at the sale, many of whom had come prepared to bid upon the fleet in lots rather than as a whole, but Sidney Henry, director of sales for the Emergency Fleet Corporation, stated that the Board would offer for sale the whole number of ships as a unit. The bid of $750,000 represents a little more than $3,318 a vessel which is considerably in excess of the bid of $2,100 a ship which was made some time ago and rejected by the Board.

Under the contract of sale the vessels will not be used for transportation purposes but will be promptly dismantled. Two hundred and seventeen of the vessels are of wooden construction, the other nine being composite wood and steel. Two hundred and eleven of the vessels are located at Claremont, Va., thirteen are in Orange, Tex., and two at Beaumont, Tex.—*The Nautical Gazette*, 16 September, 1922.

ENGINEERING

JAPANESE FUEL SUPPLY SHIP HAS MANY NEW FEATURES.—The *Kamoi*, a 20,000 ton, 8,000 H.P. twin screw fuel supply ship for service with the Japanese Navy, and the first vessel of any navy other than the United States to be electrically propelled, successfully completed the builders' trials off the Delaware Capes last week. For thirty-six hours the *Kamoi* was put through tests that brought into play every possible stress on all parts of her machinery and equipment and showed no signs of weakness.

The electric drive equipment of the *Kamoi* designed and installed by the General Electric Company, includes the use of synchronous motors for the first time in any twin-screw vessel. Tests demonstrated that the Japanese ship is the most economically operated steam vessel of her size afloat. Her electrical propulsion machinery gives unusual flexibility of control as well as economy of operation, and the mechanical simplicity of the driving unit affords exceptional reliability.

There is practically no vibration to the vessel as was shown by the balancing of a nickel on edge on the foundation of the main turbine while the ship was under way. While the ship was going ahead at full speed the propelling machinery was reversed to one-quarter astern in nineteen seconds, after which the engines were brought up to full speed astern.

The main propulsion unit consists of an 8,000 horsepower Curtis turbine generator, supplying power to two 4,000 horsepower synchronous motors directly driving the twin-screw propellers. There are also two 400-kilowatt direct current turbine generators which supply the excitation current as well as power to operate the auxiliaries such as the main circulation pump, main condensate pump, sanitary pump, blower motors, steering gear, radio apparatus, ventilators and lighting equipment.

There is also a 625 kilowatt auxiliary alternator which can be connected to either of the auxiliary turbines in case of the failure of the main driving unit or any of the auxiliaries. This small generator will supply sufficient power to propel the ship at a speed of about seven knots.

The vessel is a coal burner, equipped with four Yarrow type boilers which have oil spray boosters attached to be used when high temperature is desired quickly.

The radio equipment is also of General Electric manufacture, consisting of a one-kilowatt telephone and telegraph transmitter and two complete receiving sets, one with a range of 250 to 3,000 meters and the other from 250 to 30,000 meters. An unusual feature of the telephone installation is five extensions from the radio room connecting with the captain's cabin, engine room and other parts of the ship. By means of this equipment the captain can remove the receiver from the phone at any one of five stations and put in a call for the officer of another ship and carry on a conversation by radio much as he might from an office on a land telephone.

The ship has a normal tonnage of 19,500, is 495 feet long and has a beam of 62 feet. It has a draught of 28 feet and a deadweight displacement of 13,000 tons. It is equipped to carry approximately 10,000 tons of fuel oil.—*The Nautical Gazette*, 16 September, 1922.

AN ELECTRO-MAGNETIC INSPECTION LAMP.—A portable electric lamp, which will be found a great convenience for inspecting machinery in darkened parts of the factory or workshop, is the Kendrick electro-magnetic inspection lamp. It consists of a lampholder (complete with wire guard, bulb, and length of flexible) mounted on an electric-magnetic base, which adheres strongly to any iron or steel surface, leaving the operative's hands free, preventing the possibility of breakage, and ensuring efficient illumination of the work to be carried out without obstructing the worker. The makers (The Neale Magnet Construction Co., of 7, Suffolk St., Pall Mall East, S. W. 1.) also make a high-voltage lamp for any circuit between 100-250 volts, for factories and industrial establishments, and a further model, approved by the Home Office, with special insulating and earthing arrangements to comply with the Factory Acts. A special type is supplied for motor-car inspection, which may be used in conjunction with the ordinary lighting set.—*Engineering and Industrial Management*, 7 September, 1922.

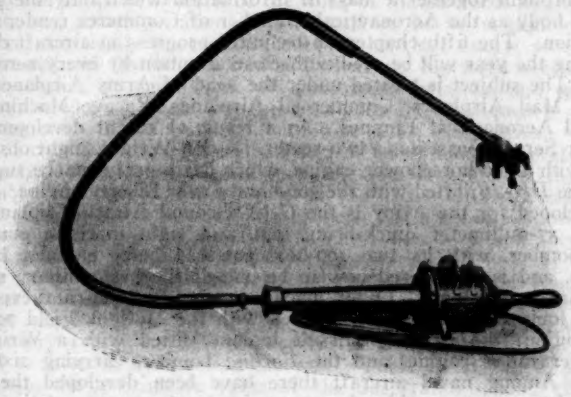
THE PENFLEX RIVET "GUN."—The Penflex rivet "gun" of the Pennsylvania Flexible Metallic Tubing Company, Philadelphia, in use at the yard of the New York Shipbuilding Company, is illustrated in the *Iron Age*, for August 17. The "gun" and the forge are conveniently located at a distance, tubing leading to the job. As each rivet is heated and ready to be passed, it is set on a valve provided in an opening contained in the head of the "gun." The rivet opens the valve by its own weight and enters the machine. The valve closes then automatically and the rivet is sent on its journey simply by pressing a foot treadle, this placing the "gun" in communication with a compressed air receiver. The rivet "gun" has a distance capacity of 125 ft., delivering rivets up or down at the rate of 50 ft. every three seconds. It is claimed that the "gun" has exceeded this performance, shooting rivets 180 ft. in nine and a fraction seconds without subjecting the rivets to change of temperature. One of its outstanding advantages is that it eliminates the necessity of placing rivet forges in close compartments near the riveting work in hand.—*Engineering*, 1 September, 1922.

PNEUMATIC TOOL FOR REMOVING RUST AND SCALE.—A pneumatic tool for breaking light scale from boilers and removing rust and old paint from constructional ironworks and ships' bottoms is being placed on the market by Sir W. G. Armstrong, Whitworth & Company, Limited. The action of the piston is so very rapid and the blow is so light that all risk of damage to the surface operated upon is obviated while the work is accomplished in a fraction of the time required when hand hammers are used.

On account of its small size and weight of only 4.75 lbs., the machine can be operated by boys without any difficulties. Its length over all is 23.5 inches and approximate consumption of air at 95 lbs., only five cubic feet.

It can deliver 9,000 blows per minute.—*The Nautical Gazette*, 23 September, 1922.

AN ELECTRIC SCALING HAMMER.—Demonstrations have recently been given in this country of the Sandblom electric scaling hammer, which has been devised by a Swedish inventor and has had considerable application in Scandinavia. This tool, which is illustrated below, consists of a spindle making about 1,200 revolutions per minute and equipped with a number of short chains with small hammer-heads at their free ends. The number of these chains varies from eight to two, according to the class of work to be done. The driving power is supplied by a small electric motor of very light weight, and so adapted that it may be conveniently



SANDBLOM ELECTRIC SCALING MOTOR, FLEXIBLE SHAFT AND HAMMER-HEAD

held by the workman. When the motor is started the chains are thrown outwards by centrifugal force. The revolving spindle with its hammers is then held parallel to the work, so that the hammer-heads come into contact with the surface to be scaled, striking the surface at the rate of about 10,000 blows per minute. It is claimed for the apparatus that it provides the most rapid and efficient means yet devised of removing scale, rust and paint from iron and steel work, and, moreover, leaves a smooth and even surface, without the cuts and indentations in the plate associated with the use of hand and pneumatic chipping tools.

Actual test made at a floating dock in Copenhagen demonstrated that the Sandblom hammer did the work of from ten to twenty-five men with hand hammers, and worked at about three and a half times the rate of pneumatic scalers.—*The Shipbuilder*, August, 1922.

AERONAUTICS

THE YEAR'S PROGRESS IN AIRCRAFT.—What Jane and Brassey have done for the naval world, the *Aircraft Year Book* of the Aeronautical Chamber of Commerce of America promises to do in the broad field of aeronautics. Although the aircraft annual is but a few years old, it has grown so rapidly, and is edited with such care and comprehension, that it is distinctly comparable in scope and quality to the long-established naval annuals above referred to. Within its 250 pages will be found an answer to every question which a yearbook may legitimately be expected to answer.

The book opens with a review of commercial aviation during the year, in which the fact is brought out that aircraft have continued to demonstrate

their utility equally in the fields of commercial transportation and of military service. Chapter two deals with the problems of aerial transportation, such as the need for capital for proper terminals, landing fields, etc., and the urgent call for thorough reliability.

So important were the bombing tests carried out a year ago, off the Virginia Coast, that a considerable part of the third chapter is given up to a discussion of these tests. Each series is taken up in its turn; and it is needless to say that this digest forms in itself a very thrilling story, ending with the sinking of the battleship *Ostfriesland* by bombs of 200-pounds weight.

One of the most valuable chapters of the book is that devoted to a review of aeronautics throughout the world, nation by nation; for here we have brought together a mass of information which only the facilities of such a body as the Aeronautical Chamber of Commerce render possible of collection. The fifth chapter on technical progress in aircraft construction during the year will be read with close attention by every aeronautical student. The subject is treated under the head of Army Airplanes, Naval Aircraft, Mail Airplanes, Commercial Airplanes, Racing Machines, Airships, and Aeronautical Engines. As a result of recent development, the Army Air Service possesses a two-seater, Dayton-Wright, night observation biplane, with a 300-horsepower engine, which has a performance superior to that of the *DH-4B*, fitted with the 400-horsepower Liberty engine. Another type developed for the Army is the *GAX* Ground Attack Triplane, which carries a 37-millimeter quick-firing gun, and eight machine guns. The *Martin* bomber, with its two 400-horsepower Liberty engines, has been improved, and is considered now to be one of the best military machines of its class in existence. Other machines are two semi-cantilever monoplanes, a long-range day bomber, fitted with the McCook Field 700-horsepower engine; the *Loening* pursuit biplane, fitted with a Wright 400-horsepower radial engine, and the *Barling* bomber, carrying six Liberty engines. Among naval aircraft there have been developed the *Curtiss* torpedo dropper—a notable departure in seaplane construction. Great promise is also shown by the Douglass torpedo dropper.

A notable feature of this annual is the number and character of the illustrations, which are well-chosen for their purpose of showing the various types of machine, and particularly those which have won for the United States various records for height and speed. These include some excellent photographs of the airship bombing test, and views of various useful services, such as forest fire partol, in which the airplanes has found a field of usefulness.

The Historical Design Section, which constitutes the second half of the volume, is packed with information. It opens with a complete series of line drawings, including plan, front and side elevation of the various types of American aircraft. These are followed by pen-and-ink drawings of the standard types of motor; and the work closes with a statement of aircraft appropriations by the United States Government, aircraft production costs, the activities of the Mail Service, and of the Forest Fire Patrol. Finally there is a very complete chronology of aircraft happenings for the year 1921.—*Scientific American*, October, 1922.

THE LOGIC OF A SEPARATE AIR FORCE.—Among older officers of the army and navy, advocates of a separate air service have encountered very general opposition to their views based largely on tactical doctrines. These officers point out that unity of command is essential to success in war, and no one can question the truth of this; evils of divided leadership have indeed passed into a proverb. These officers assert further that true unity of command—good team work, in other words—cannot be secured in war unless habitually practiced in peace; nor can anyone object to this dictum. From these major premises, they proceed with the further assumption that in

time of battle, the air service must strictly conform to the work of the ground or sea forces, and from this logically deduce that the air service must be in war and in peace a component part of the army and navy. In the latter assumption lies the error.

OBSERVATION VS. AIR WARFARE

It is human to formulate general principles from one's own experiences, no matter how limited they may be. The average army or navy officer in the World War, if he had any contact at all with the Air Service, show nothing but the work of observation aviation. The number of officers of rank who had occasion to learn of the work of the air force—pursuit, bombardment, and attack aviation—is so small as to be negligible. Naval officers had practically no experience of air warfare except patrol. It is then, quite natural that officers of rank, whenever the word aviation comes under discussion, at once think of observation aviation, and mistakenly displacing the whole in their thoughts by a part, arrive frequently at erroneous conclusions. In their minds aviation connotes observation.

Were it true that the airplane had no rôle other than observation, there would be little that could be said in favor of a separate air force. Unquestionably observation must work in the most intimate liaison with ground troops on the fleet, and quite properly the observation units should form a component part of the land or naval unit to which they belong.

But observation aviation is far from constituting the bulk of the work of an air force. On the contrary, by the end of the World War, it comprised less than a fourth of all the airplanes on the western front, the remainder consisting of the airplanes of offensive aviation. Moreover, there is every reason to believe that the relative strength of the latter will tend to increase rather than decrease. There is no desire, of course, to underrate the inestimable value of the observation plane. But from a purely aerial point of view, it is of far less importance than the remaining branches of an air force. On the principle of the greatest good to the greatest number, it is obvious that air policy should be determined not by the needs of observation but by the needs of the air force, wherever the two should be found conflicting.

FIGHTING OVER THE SEA

Fighting over the sea is essentially the same as fighting over the land. The principles that govern it are derived from the air, which covers both alike. The same air force that today goes out to battle with hostile navies, tomorrow may attack his landing parties, and the next day join battle with the enemy land and air forces. In the first day it would co-operate strategically with the navy, in the last with the army; but throughout it would remain what it is in essence—neither army nor navy, but air force. Its liaison with both would be a very tenuous thing. It should be no part of army or navy, but should be a separate branch of the national defense, free to work out its own destiny, unhampered by the weight of older systems that utterly fail to answer its needs.

But what of observation aviation? Should it be a part of the army or navy, or should it too be brought into a separate air service? There is no question that the co-operation between observation aviation and the army or navy units it serves, must be intimate. But it must also keep in close liaison with the air force, if it is to operate safely and successfully. From the standpoint of purely tactical employment, there is much to be said in favor of either assignment. But there is still another point to be considered. Pilots and observers must be trained and airplanes designated, produced, and supplied. This work could unquestionably be better done by a separate air service. It is not necessary to destroy tactical unity; air organization, on the contrary would be placed under the orders of com-

manders of army and navy units. But it is believed that a separate air force could supply to the army and navy units better trained and equipped for observation than these older arms could produce for themselves. As to the wisdom of uniting the air forces of the government into one group, few who know the needs of the air can doubt—*Aviation,* 11 September, 1922.

ALL-METAL BRITISH AEROPLANE.—Orders to the value of between £200,000 and £300,000 are now being placed in connection with the increase in the strength of the Royal Air Force by twenty squadrons, something like 500 machines, including reserves. It is not the intention of the Air Ministry at present to put all-metal craft in production in any quantity.

Various all-metal and other types are already in course of construction, some of them being on the point of completion, and additional orders may be placed for all-metal machines in connection with the new twenty squadrons' scheme.

While attention has been concentrated to a certain degree on the new all-metal aircraft, other designs of ordinary construction are really just as interesting, if not more so, from the practical point of view of actual aircraft development.

It is well known, for instance, that the Air Ministry has had in course of construction for some time past very large types of flying boats for open sea reconnaissance work, some of which have been fitted with two Rolls-Royce Condor engines of 650-horsepower each, while others have been fitted with four of these powerful engines.

Other aircraft are now projected with a still larger engine of greater horsepower, the "Napier Cub," of over 1,000-horsepower. Probably one of the first craft to be fitted with these large new engines will be a bombing machine of very long range. About six all-metal machines of different types are already in course of construction by various firms at Kingston-on-Thames, Norwich, Byfleet, and Coventry. Some are designated as fighters, and others as troop-carrying planes, and for reconnaissance work of a character similar to that now being carried on in Mesopotamia.—*Naval and Military Record,* 23 August, 1922

DETACHABLE LANDING GEAR.—Lawrence Sperry has added to his other achievements, the inventions of a skid device so constructed that by simple mechanical means the whole landing gear of his airplane is released and dropped to the ground and a landing is made on skids. Mr. Sperry in a *Messenger* plane that has a usual run of 400 ft. has landed in one tenth of the distance.

The high speed of the *Messenger,* which is normally 99 m.p.h., was found to be 105 m.p.h. with the landing gear released.

The object of dropping the landing gear is three-fold. First, dropping the landing gear gets rid of the weight and head resistance of the landing gear, thereby increasing the performance in climb and speed of the plane.

Second, dropping the landing gear and landing on skids makes it possible to land in a much shorter space than hitherto.

Third, dropping the landing gear and landing on skids makes it possible to land on rough fields full of knolls and ditches, and also on water, without damage. (For the latter purpose, fuselage would be made water-tight.) It can also be used to advantage for heavily loaded flying boats which can take off the ground or ice, drop the landing gear and continue to fly over the water.

Superior performance can be obtained by dropping the landing gear. However, this will apply more particularly to the high-speed planes where the dropping of the landing gear will increase the flying speed some 10 m.p.h., depending upon the plane speed, at the same time getting rid of 90 or more pounds of weight.

The shorter distance of run with the skids is due to the friction between skids and the ground, whereby a run of one-quarter the usual distance is possible. This friction between the ground and skids is increased by the fact that the skids had been placed so that the machine presents a zero if not negative angle to the airflow. This means that at the beginning of the run there is no lift from the wings to detract from the friction of the skids and also no bouncing. The machine can be put on the ground at excess flying speed without bouncing. Landing on rough ground is made possible with skids because they have runners as in sleighs to bridge over ditches, thereby running more smoothly than with wheels.

The skids will permit landing on water, since the greatest obstacle to landing on water with the land machine is the landing wheels. The skids do not turn the machine over on its end on account of the fact that the center of gravity is so high above the wheels.

The plane used for the experiments was a *Messenger*. Releasing the landing gear is done by pulling a hand lever on the right hand side of the fuselage, which operates a cam, ejecting the four posts of struts simultaneously, so that it is impossible for one strut to remain fast and *joining* the release. Close to the landing gear under the fuselage is a small streamline case containing a small parachute weighing five pounds. The parachute is attached to the top of the four landing gear struts, so that the first thing to strike the earth is the tires, which transmits the load to the shock obsorbers.

During all of the experiments the same landing gear was used, without injury when dropping. The parachute could be used in a like manner over water, the buoyancy of the tires would support the gear and the white parachute would act as a mark, so that it could be found easily and pulled aboard ship.

The skids are so arranged that it is almost impossible to nose over in the roughest fields, which has been demonstrated by Mr. Lawrence Sperry landing on bumpy ground and running over a country road; this is due to the low center of gravity of the machine and the skids projecting so far forward.

The shock of landing is taken up by first landing on the rear end of the skids, which tends to stretch the front shock absorber rubber up to a point where the tail skid and landing skids are in line. Any additional shock is taken up by the shock absorber between the landing gear V struts. A nose on landing or hitting a bump is taken up by the front strut shock absorbers which are double acting.

When making a landing with the skids it is necessary to stop the propellor horizontally. This is done on the *Messenger* plane, which has a radial engine, by releasing the compression in two cylinders, and have the propeller so arranged that it will stop horizontally on the third cylinder.—*Aviation*, 4 September, 1922.

LARGEST AIRPLANE IN U. S. TO BE TESTED BY ARMY.—Washington, Sept. 8.—Results of extreme interest to the science of aeronautics are expected by army aviation experts to be obtained from the forthcoming trials at Fairfield, Ohio, of the largest airplane ever constructed in the United States.

The machine—a super-bomber triplane with a wing spread of 127 feet and carrying six Liberty motors totalling 2,400 horsepower—will have an estimated speed of 100 miles an hour, with a carrying load of 20,000 pounds. Its construction was begun in 1919 and carried forward secretly at the Whitte Mann Aircraft Company's plant, Hasbrook Heights, N. J.

Parts of the triplane recently sent from the New Jersey shops had to be shipped by circuitous routes to the Ohio station in order to get tunnel clearance for them on the railways.

The six motors are set in three pairs with one puller and one pusher to each group. The total weight of the machine including the carrying load, will be 30,000 pounds. A cruising radius of 1,300 miles is called for by the specifications, exceeding by hundreds of miles the radius of bombing machines now in the service.—*Baltimore Sun*, 8 September, 1922.

ORDNANCE

SHRAPNEL AND TIME FUSES.—The training section of the Reichswehr-Ministry sets problems every year to be solved by the officers of the various arms. This examination appears to have the objects of (1) testing the professional capabilities of officers; (2) encouraging professional studies, and (3) collecting opinions on important points. The main point is the first mentioned and, accordingly, the examination includes various tactical questions, problems in fortifications, sketching, map-reading, military history, economic geography, foreign languages, mathematics, and science, as well as armament and equipment.

In 1921, the problems for Artillery Officers under the last head were: "Can light artillery dispense with shrapnel and with time fuzes." The recently published comments on the papers deal with these two questions as follows:

The opponents of the retention of shrapnel for light artillery take the view that shrapnel can be entirely replaced by explosive shell with sensitive (instantaneous) fuzes, delay action fuzes (for ricochet action), and time fuzes (map shooting and ranging for line), and by canister shot. They put forward the following arguments:

At over 3,000 metres range, the effect of shrapnel is frequently insufficient. This is explained by the loss of striking velocity, by the steeper angle of descent and, above all (sic!), by the fact that, for example, skirmishers hear the report of discharge before the shrapnel bursts and can throw themselves down so as to offer a limited target.

The penetrating power of the balls, especially if they are made of steel instead of lead, is insufficient. This is especially the case with horses and with an enemy in winter clothing.

The possibilities of taking cover or avoiding shrapnel fire are much greater than in the case of shell-fire with H.E.

The moral effect of shrapnel-fire is smaller than that of high-explosive shell, which is due in large measure to the small report of the detonation of shrapnel in addition to the reasons given above.

If it is impossible to regulate the height of burst, the shrapnel shell loses appreciably in effect. Bursts which are too high have little effect; bursts on impact practically none. Hence, shrapnel cannot be used in the numerous situations in which it is not possible to regulate the height of burst, (e.g., when shooting by night or with low visibility, fire preparatory to an attack, searching behind crests and woods.)

The value of shrapnel for enfilading trenches and roads is overestimated. For example, trenches can only be enfiladed when they lie exactly in the line of fire; but, even so, modern trenches, with their irregular form and numerous traverses, make an effective enfilade problematical. Roads, which are under observation within shrapnel range, bear little or no traffic in daytime, i.e., when it is possible to regulate the height of burst.

The use of the shrapnel time-fuze necessitates a different procedure to that of H.E. percussion fuze. Therefore the training manual would be much simplified by the abolition of shrapnel. Above all, it is much easier to master the art of shooting with H.E. percussion fuzes and delay action fuzes (ricochets) than that with shrapnel time-fuze: this is of great importance in war, when one must reckon with less well-trained forces.

The difficulty of storing large quantities of shrapnel in position warfare, so that the time-fuzes, which are subject to the influences of the weather, are adequately protected, must not be under-estimated.

The mass-production of a reliable time and percussion-fuze was a failure in the war owing to the lower care and skill of the labor available.

The incendiary effect of percussion shrapnel was wrongly estimated in peace time. Straw-stacks should be fired with H.E. shell, not with shrapnel; in the same way, at short ranges, H.E. shell have a better incendiary effect on thatched houses than shrapnel shells.

H.E. shell with delay-action fuze is more effective against masonry than shrapnel.

On the other hand the retention of shrapnel is urged because:

Shrapnel with time-fuze is excellent for use against visible living targets up to 3,000 metres range. Its claim to existence is based on the requirements of moving warfare. Stationary warfare is responsible for a reduced estimate of its value; but every power, when at war, will seek a decision in war of movement and in that shrapnel has fully substantiated its claim to existence.

The long forward-effect of shrapnel facilitates the searching of a large area, by the simultaneous use of various ranges, in a shorter time than is possible with H.E. shell. That is very important in the case of surprise fire on fleeting targets.

The advantage of the forward-effect of fire makes itself felt particularly against targets formed in depth. Every modern infantry attack offers such a target.

Shrapnel is of increased importance in situations in which the effect of H.E. shell with impact or delay-action fuzes is limited by the terrain or situation. Such is the case on marshy ground, on terrain covered with thick undergrowth or bushes, and at ranges up to about 1,200 metres, i.e., at the decisive point of the battle.

With shrapnel at short ranges, suitable fuze-setting produces a grape-shot effect, the most favorable fire effect for close-fighting.

The difficulty, which is alleged to have existed towards the end of the war, of achieving good results with the shrapnel time fuze, was chiefly due, not to insufficient training, but rather to the impossibility of regulating the point of burst with the badly burning fuzes. The English artillery is a proof of this, since, owing to superior fuzes, it could place the point of burst with absolute precision and obtained good effect. The English were, however, hardly better trained.

Weighing up the evidence of the opponents and supporters of shrapnel, one comes to the following conclusion:

If we do not succeed in manufacturing a thoroughly efficient shrapnel shell, with lead bullets and a fuze, which is independent of weather influences, and satisfactory powder in mass production, with less skilled workers, then the light artillery must dispense with shrapnel. If, however, it is possible to make such a shrapnel shell, for which a loud detonation is also desirable, then it should not be abandoned, for that would mean giving up a projectile, which, in special cases, is decidedly superior to H.E. shell. For the present, therefore, we cannot dispense with shrapnel.

The second part of the questions, as to whether the time-fuze can be dispensed with, is to be answered in the negative.

The time-fuze is absolutely essential to make calibration for map-shooting and testing lines of fire possible. With this object, some of the shells, including the *C* projectiles, must be provided with time-fuzes. Shooting for effect with H.E. time-fuze is seldom required, since the introduction of shooting for ricochet effect. The rarity of such cases would certainly not justify providing all shells with time and percussion fuzes. The H.E. time-fuze will be used for effect only against air targets.—*The Journal* of the Royal Artilley—September, 1922.

[*Note.*—Some of the arguments deduced against the employment of shrapnel shell are far from convincing. It should, however, be remembered that the German shrapnel shell was distinctly inferior in design and general efficiency to the British shrapnel.]

NAVY DESIGNS NEW GAS MASK.—Washington, Aug. 27.—Development of a new rescue breathing apparatus that permits the wearer to operate freely in smoke or gas filled compartments with his movements practically unimpeded has been perfected in the New York Navy Yard, according to report from the commandant, just submitted to the department.

Working in co-operation with the Bureau of Mines, the naval experts have succeeded in creating a new type of apparatus that weighs only fifteen pounds, overcoming all the objectionable features of the old types. The purpose for which the navy intends the new device is to permit entrance into compartments which are filled with smoke or deadly gases. The bulkiness of the old design makes it difficult for the wearers to go about rescue work.

The report to the department gives an explanation of the theory and practice followed in the design of the apparatus. In the process of breathing from ten to thirty-five per cent of the oxygen entering the lungs is absorbed by the blood; the remainder is exhaled with the nitrogen and carbon dioxide produced in the lungs. The exhaled air contains on an average about four per cent of carbon dioxide. If air containing as much as five per cent carbon dioxide is inhaled breathing is accomplished with difficulty; headaches and dizziness follow.

To provide an adequate supply of oxygen and to dispose of the carbon dioxide gas exhaled this new device has been designed to furnish a constant supply of oxygen at a respirable pressure and to eliminate as far as possible the carbon dioxide. It consists of a small cylinder of oxygen at 1,800 pounds pressure, sufficient for a half-hour's use; a rubber breathing bag which acts as an elastic chamber between the compressed oxygen and the lungs to facilitate breathing, and a canister filled with caustic soda or soda lime to absorb the carbon dioxide exhaled.

Headgears for holding the mouthpiece in place, gauges for indicating the amount of oxygen in the cylinder at any time and nose clips form secondary but necessary parts of the outfit.—*Baltimore Sun*, 27 August, 1922.

RADIO AND NAVIGATION

SENDING PHOTOGRAPHS BY RADIO CODE.—The various methods of sending pictures by wire or by radio have usually depended upon the use of a cylinder, like that of the earlier phonographs, about which the pointer of the transmitting mechanism travels spirally, like the recording needle of the phonograph. The receiving mechanism called for a cylinder of the same size, revolving in exact synchronism with the transmitting cylinder.

Among the earliest experimenters with this type of apparatus was Dr. Arthur Korn, of Berlin, who attained very notable results about ten years ago, but without producing an apparatus that was a commercial success. Now, however, Dr. Korn has demonstrated a new method that appears to overcome some of the objections to the earlier work, in particular discarding the receiving cylinder, the accurate synchronizing of which constituted one of the greatest difficulties of the earlier process. The fundamental conception of the new method has the merit of great simplicity. The signals transmitted by radio are merely successive groups of letters of the alphabet; and the receiving apparatus (associated with the ordinary radio-receiver) is merely a typewriter or other mechanical printer, so modified that it writes dots of various sizes instead of letters.

A description of Dr. Korn's new method, by which a photograph has been reproduced by radio across the Atlantic, is given by Arthur Benington in an article in *Radio Age* (Chicago) largely excerpted from the New York *World*, under the auspices of which newspaper the first successful transatlantic test of the method was made. After stating that the code message for the picture was sent from Rome, Italy, to Bar Harbor, Me., by radio and briefly recording other successful transmissions, the following description of the method is given:

"If you look through a strong magnifying glass at a half-tone picture in a newspaper or magazine you will observe it to be made up of a multiplicity of tiny dots, the very light part being of small dots widely spaced, the very dark spots of larger dots close together. Professor Korn, on analyzing photographs and half-tones, realized that for practical purposes all the values of light and shade could be reproduced with from fifteen to twenty sizes of dots.

"Suppose, for example, we take seventeen different sizes of dots and give to each a letter, say A for the smallest and P for the largest, the intermediate letters being for the intermediate shades. Now, if we can construct an apparatus which will automatically translate these seventeen values into seventeen corresponding letters and print these letters on a tape, we have a code which can be sent by wire or wireless to any place in the world, and if we have a typewriter that prints, instead of the letters indicated on the keys, the large or small dots which correspond to those letters, we can decode, or translate that telegraphic or radiographic message into a half-tone picture.

"This is just what Professor Korn did.

"The machine which does the coding is quite complex. In making a half-tone picture direct from the photograph, a wire screen with larger or smaller mesh, according to the fineness of the half-tone desired, is placed over the face of the picture and a negative photograph is taken through the screen, thus producing the dots.

"The Korn apparatus uses no screen, but a point of brilliant light traveling over the photograph, being cut on and off rhythmically by a commutator in such a way that it strikes the picture at accurately spaced points, working very much like the light of a moving-picture machine. An ordinary cabinet size photograph receives the light at about 1,000 points.

"The light passing through the negative falls upon a selenium cell, the quantity passing through depending on the darkness or lightness of the spot through which it passes. Selenium is a mineral crystal endowed with the peculiar property of passing an electric current only when exposed to light and of changing its electric resistance according to the degree of light that reaches it.

"Professor Korn makes use of selenium by placing a cell of it in the transparent cylinder on which the negative is coiled, and as the latter slowly revolves the light that passes through the negative falls on the selenium. A current of electricity from a battery passes through the selenium, and its resistance is varied by the values of the light.

"Each variation of resistance—of which in this case there would be seventeen—controls a key which drops to print a letter on a tape the instant it is actuated by the electric current. The mechanism by which the present Korn machine does this is too complexed to describe here; suffice to say that it prints the letter which corresponds to the particular shade of the photograph.

"In 'coding' a picture we get about 1,000 letters. These are grouped by spacing into about 300 'words' which are sent by radio (or by telegraph) to any place. They are received by an ordinary telegraph, or radio operator or by an automatic telegraphic receiving apparatus.

"To decode or turn this word message back into a picture, a Korn decoding instrument is necessary. This is a form of typewriter into which a sheet of paper about twelve by fifteen inches in size is placed. With the printed message before him the operator copies it on the keys; these, however, do not print letters, but dots of the sizes and shapes corresponding to the letters. As the code allows for the blank spaces between the dots the result is a very much enlarged half-tone of the original photograph, and this needs only to be photographed down to the size wanted by the paper; the smaller it is, the finer the half-tone. This decoding instrument may be attached to an automatic telegraph receiving machine in

such a way that the code letters are entirely cut out and the telegraph machine prints the dots directly.

"There are at present only two sets of Dr. Korn's apparatus in existence; one of these is in Germany, the sending machine, and the other is at Dr. Korn's laboratory at Centocelle, near Rome, and the receiving or decoding instrument is in America." *The Literary Digest,* 25 September, 1922.

REPORT ON DEPTH SOUNDINGS BY U. S. S. "STEWART."—1. Following is the report of tests of a new device; the Sonic Depth Finder made by the U. S. S. *Stewart* en route from Newport, R.I., to Gibraltar, June 20, to June 29, 1922.

2. The apparatus used for the tests was as follows:

(a) Standard Navy sound receiver.

(b) Submarine Signal Company's Fessenden type of sound oscillator for transmitting sound signals.

(c) Navy Sonic Depth Finder recently developed at the Engineering Experiment Station, Annapolis, Md.

3. The tests consisted of:

(a) Taking a line of soundings from Newport to Gibraltar, via Nantucket Lightship, Azores, crossing Josephine Bank and passing near Gettysburg Bank.

4. Test (a) For depths less than about ninety fathoms the depth was determined with standard Navy sound receiver, and depths greater than ninety fathoms were taken with the Navy Sonic Depth Finder, by measuring the time required for a sound signal to travel to the sea bottom and return. About 900 soundings in all were taken for depths varying between nine and 3,200 fathoms. This is an average of about 100 soundings a day. Except for one or two cases where the period between successive soundings was about one hour, the longest period between soundings was twenty minutes and the shortest period was one minute. The speed of the *Stewart* was maintained steady at 15 knots except about two hours when the speed was about 25 knots. During this latter period the *Stewart* steamed over depths varying between 900 and ninety fathoms. Throughout this part of the course soundings were taken with the ease at one-minute intervals by means of the Navy's new sounding device. A record of the sounding data taken is enclosed in the form of a contour curve drawn on a chart which covers the route taken, and on which the track of the *Stewart* is drawn. These data are clear and no comments are made thereon other than to say that the apparatus worked perfectly throughout the trip, and the results obtained have demonstrated that the contour of the sea bottom can now be readily determined with considerable accuracy.—Bureau of Engineering, *Bulletin.*

MISCELLANEOUS

SCRAPPING PROGRAM OF UNITED STATES.—The announcement by Secretary of the Navy Denby that no scrapping of new capital ships of the American Navy will be undertaken until all parties to the five-power naval treaty have exchanged ratifications, has served to emphasize the delay of France and Italy in action upon this and other treaties and agreements of the Washington Arms Conference.

Administration spokesmen deny that Secretary Denby's announcement indicated any suspicion of the nations which have failed to ratify, but in other circles there is frank skepticism particularly to the French intentions. A frequent expression is that France is taking this means in reprisal for our ignoring the frequent hints that we cancel the war indebtedness. Another interpretation is that she wants to have her hands free in order to have something to trade in the clashes she is having with England and possible eventualities in the Near East.

It was the Administration hope that the ratifications would come before election, for the reduction of naval armament is the one big achievement the Harding régime of which the Republican campaign orators meant to boast. But a year after the agreement, the naval reduction is still in the air, with all the countries holding all except the ships that would have been scrapped as obsolete without any conference.

The Administration still insists that ultimately all the treaties would be ratified, but that they no longer expect it in the near future.

The United States, Great Britain and Japan have ratified all of the treaties. Ratification was completed by the Senate months ago. Great Britain completed ratification August 1, and Japan on August 5. The British and Japanese ratifications are now on deposit in their respective embassies here and the diplomatic representatives of these powers only await the naming of a date by President Harding for the exchange of ratifications.

Portugal and China likewise have ratified all of the treaties and agreements to which they are parties, and their ratifications now repose in the Portuguese and Chinese Legations here.

The Arms Conference treaties have been discussed in the French Parliament and at its last session were referred to a committee of the French Senate with instructions to submit a report when Parliament meets again next month.

Even before the Arms Conference adjourned, Italian spokesmen made it clear that Italy would withhold action on the naval treaty pending its ratification by France. Apparently this policy is being strictly adhered to by the Italian Government, no action having been taken at Rome looking toward ratification of this or other Arms Conference treaties.

Belgium and Holland likewise have withheld action on the Washington treaties to which they are parties, and presumably they also are awaiting formal action by the French Government.

Senator Borah, among others, is decidedly pessimistic concerning the final outcome of the conference treaties and does not expect to see all of them ratified. Some naval experts are equally bearish, venturing the opinion that within a few years the nations will resume ship building.—*Baltimore Sun*, 27 September, 1922.

Vessels To Be Scrapped

Name of Vessel	*Where to be scrapped*	*Present status of*	*Age completed*
Maine	Sold to Hitner & Sons, Philadelphia.	Now being scrapped at Phila.	June 1, 1901
Missouri	Sold to Hitner & Sons, Philadelphia.	Now being scrapped at Phila.	Aug. 30, 1901
Virginia	To be sold at Boston Navy Yard	Being prepared for sale	Feb. 15, 1904
New Jersey	To be sold at Boston Navy Yard	Being prepared for sale	Feb. 15, 1904
Rhode Island	To be sold, Mare Island	Being prepared for sale	Feb. 15, 1904
Georgia	To be sold, Mare Island	Being prepared for sale	Feb. 18, 1904
Nebraska	To be sold, Mare Island	Being prepared for sale	

FLEET REDUCTIONS AND COMPARATIVE STRENGTH.—It may be doubted whether the general public even dimly appreciates the enormous reduction which the Royal Navy has undergone during the past three years. That a considerable number of vessels in each class have been transferred to the disposal list, and sold to be broken up at home or abroad, is com-

mon knowledge, but the full extent of this unparalleled clearance of naval material is realized by few. Many of the vessels thus discarded would have been excluded in any case from the postwar reorganization of the fleet, owing in part to deterioration in fighting value and in part to reasons of economy. Others, however, would probably have been retained for some years longer as ships still capable of performing useful work, had not the Washington agreement prematurely condemned them to the scrap heap. How far the process of reduction has gone is revealed by the fact that the Admiralty last week gave orders for the last capital ships affected by the agreement to have their armament disabled, preparatory to their being sold. The ships in question are the *Erin, Orion, Conqueror,* and *Monarch,* battleships, and the *Lion* and *Princess Royal,* battle cruisers, all of which were launched ten to twelve years ago. It is interesting to recall that the *Conqueror, Monarch, Thunderer* and *Princess Royal* were the "contingent Dreadnaughts" voted in 1909, as additions to the normal program for that year, these four ships representing the fruits of a vigorous agitation waged by the Press in favor of extraordinary measures to meet the menace of German naval expansion. The *Orion* class, of which the *Thunderer* is now to be the only survivor, were the first modern battleships to mount 13.5-in. guns, for which reason they were popularly referred to as "super-Dreadnaughts." At the outbreak of war they were among the most powerful units of the Grand Fleet. Still more remarkable, however, were the battle cruisers of the *Lion* type, comprising the nameship herself, the *Princess Royal,* and the ill-fated *Queen Mary.* Laid down two months before Lord Fisher's long term of office as First Sea Lord came to a close, the *Lion* embodied his tactical ideas to a pronounced degree—very high speed combined with tremendous hitting power, but only moderate protection—his intention being that these ships should fight at very long range, where their powerful guns could inflict heavy punishment on the enemy without giving his lighter armament a chance of replying with effect. At the Battle of Jutland circumstances apparently did not favor the employment of such tactics, for our battle cruisers engaged the enemy at medium range and were thus exposed to the full weight of his counter-fire. From the engineering point of view, the *Lion* was a most noteworthy ship. In the preceding *Indefatigable* class, machinery of 43,000 shaft horsepower had been installed to attain a speed of 25 knots. As the *Lion,* however, was designed for a still higher velocity and was the heavier ship by some 7,550 tons, her turbine engines, constructed by Vickers Limited, were planned to develop 70,000 shaft horsepower, a figure that seemed prodigious for those days. On trial at full power, with her boilers burning coal only, she worked up to 73,802 shaft horsepower, her speed being 27 knots. Her sister ship *Princess Royal* improved upon this by developing 76,510 shaft horsepower and 28.52 knots, thus establishing a record, which remained unbroken till the end of 1914, when the *Tiger* realized 104,635 shaft horsepower and 29 knots.

With the deletion of the six capital ships named above, our fleet now contains only eighteen battleships and four battle cruisers. It will eventually be reinforced by the two 35,000-ton battleships which are to be laid down early next year, but their completion will automatically displace four older vessels—*Thunderer, King George V., Centurion, Ajax*—bringing the total of capital ships down to twenty. It is interesting to compare this establishment with that which was maintained respectively in August, 1914, and at the date of the Armistice, more than four years later. At the opening of hostilities we had available for service twenty-two Dreadnaught battleships and nine battle cruisers, besides forty pre-Dreadnaughts and thirty-four armored cruisers. Completing or still on the stocks were ten battleships and one battle cruiser. This gave us an eventual strength of forty-two all-big-gun ships, plus seventy-four armored ships of the older type, an aggregate of no less than 116 ships. In the course of the

war our Dreadnaught fleet was augmented by three battleships, which were being built to foreign order, and two battle cruisers, additions which exactly balanced war losses so far as number was concerned. Our Dreadnaught strength therefore remained practically constant, but among the older armored ships casualties were exceedingly heavy and these, of course, were not replaced. The Armistice found us with the following nine; pre-Dreadnaught battleships, thirty; armored cruisers, seventeen—not counting old ships of this type employed on subsidiary duty. Today, of these eighty-nine vessels, only twenty-two remain with the fleet, a fact that conveys very strikingly the ruthless weeding-out which has taken place in the interval. We have, in fact, scrapped the entire pre-Dreadnaught fleet of forty-seven ships and with them have gone nine Dreadnaughts and six battle cruisers. The smaller types of fighting craft have, of course, been swept away in far greater numbers. Light cruisers have gone by the score and destroyers by the hundred, while the submarine flotilla has shrunk from 130 boats to fifty-eight. Other Powers have also effected reductions in their naval establishments, but, having far less material to dispose of, their combined effort in this direction falls very far short of ours. The present composition of the world's navies is shown in great detail in the Admiralty Return which was published recently by order of Parliament. Under the Washington Agreement the battle fleets of the British Empire and the United States are to be of equal strength, and that of Japan is limited to ten ships. Pursuant to this arrangement, the United States is required to scrap fifteen all-big-gun ships, of which only two were completed, and approximately a dozen battleships of older type; Japan, on her part, being pledged to discard twelve ships in all, including four that were unfinished. As the other two signatories, France and Italy, possess no capital ships surplus to their respective tonnage ratios, neither Power is called upon to scrap any of its existing material.

Passing from heavy ships of war to those of lighter types, we find that the British Empire has four aircraft carriers complete and two being built, though it might be more correct to describe the *Eagle* as being reconstructed. The United States Navy has only one carrier at present, but two of its cancelled battle cruisers are being redesigned for that purpose. Japan, which has one ship built and two under construction, is also preparing to convert two unfinished battle cruisers into aircraft carriers. In spite of the withdrawal of so many ships, the British Empire is still able to marshal an imposing array of light cruisers, viz., fifty-one built and eight being built. From the number we have unfortunately to deduct the *Raleigh*, which appears to be a total loss. The United States is credited with nine light cruisers built—all of which are obsolete—and ten being constructed, while the corresponding totals for Japan are twelve and thirteen, her completed vessels, with but four exceptions, being of modern design and high speed. Moreover, since this return was compiled, a new Japanese program of construction has been announced, which includes eight light cruisers. When therefore the factors of age, tonnage and speed are taken into consideration, it appears that Japan will eventually have the most powerful light cruiser fleet in the world. Our present superiority in this respect is largely discounted by the fact that most of our ships were designed for work in the narrow seas, and if required to engage in ocean cruising would be handicapped by their limited dimensions and fuel capacity. Both in destroyers and submarines the United States Navy now occupies the leading position. Of the former, it has upwards of 300, while we cannot muster two-thirds of that total. In submarines, the disparity will be especially marked, when, in accordance with the Admiralty's plans, our establishment is reduced to fifty-eight boats at the end of the financial year, or sixty-four boats if those in Australian service are included. By that date the United States will have 141 submarines built and being built and Japan fifty-six, plus twenty-four new

boats projected in the new shipbuilding scheme. The impression conveyed by a perusal of this official return is that the British Navy has indeed been "cut to the bone," and that but for the cordial relations now prevailing between Great Britain and the other principal maritime States our strength at sea would be grossly inadequate for the defense of the Empire. As it is, the One-Power Standard we are supposed to be maintaining applies only to capital ships and cruisers. In minor vessels, which nevertheless seem cast for a highly important *rôle* in future naval warfare, we are already outnumbered to an extent that in other circumstances would be disturbing.—*The Engineer*, 19 August, 1922.

ITALIAN BUILDING POLICY: NAVAL INCIDENTS IN CHINA: NORWEGIAN SUBMARINES: RUSSIA'S BALTIC FLEET.—It was reported in these columns some weeks ago that the Italian Government would probably decide to drop the two new cruisers for which appropriations were asked in last year's Estimates and build instead a number of smaller craft. This has now been confirmed. The Minister of Marine has laid before Parliament a project to apply the money voted for the cruisers to the construction of four destroyers and six submarines, besides seventy aeroplanes for the naval service, and this course seems likely to be taken. The cruisers thus abandoned were to have been vessels of 8,000 tons, with a speed of 34 knots and a main armament of 7.5-in. or 8-in. guns. However as the funds available for the navy were strictly limited, the authorities concluded that actual defense requirements would be met more suitably by strengthening the destroyer, submarine, and aerial arms, especially as the cession of ex-enemy warships had brought the light cruiser squadron up to eight modern units. A good deal of money has been spent on reconditioning the prizes, several of which are still in dockyard hands. It is stated that the two best ships are the *Ancona* (ex-*Graudenz* and *Bari* (ex-*Pillau*). The ex-Austrian vessels *Brindisi* and *Venezia* (formerly *Helgoland* class) are built too lightly and have too small a fuel capacity for long-distance cruising. Italian naval experts say that German construction was very sound and practical, but that the Austrians tried to get too much on a given displacement, and only succeeded in turning out fair-weather ships. This seems to have been equally true of the Austrian battleships, judging by the ease with which the *Szent Istvan* and *Viribus Unitis* succumbed to underwater attack.

The Japanese battleship *Suwo* (ex-Russian *Pobieda*), which was being dismantled at Kure Dockyard, tried to forestall the operation on July 13 by capsizing alongside the wharf. It appears that workmen had incautiously removed a section of plating that continued below the waterline, and when the rivets were knocked out the water rushed in so quickly that the ship soon lay over on her beam ends and foundered. Her four 10-in. guns had already been removed, but the rest of the armament was still in place. Fortunately, the ship took sufficiently long in heeling over to allow all on board to save themselves. It is supposed that the removal of all the coal, stores, and armor-plate had made the vessel top-heavy, so that it required the entrance of very little water to cause her to capsize. The class to which the *Suwo* belonged were notoriously unstable. A sister ship, the *Osliabia*, was sunk in the battle of Tsushima. As leading ship of the port column she was brought under the concentrated fire of Admiral Togo's fleet and reduced to a blazing wreck thirty minutes after the action began. The *Pobieda* was salved after the Russians had scuttled her at Port Arthur. Most of her original guns were retained, but the Japanese found it expedient to improve the stability by loading her with 800 tons of ballast. As reconstructed the ship displaced 13,500 tons, her speed being reduced from 18 knots to 16. In 1902 she represented the Russian Navy at the Coronation Review held at Spithead. The third vessel of

this type, *Pereviet*, also sunk at Port Arthur, was salved and commissioned under the Japanese flag as the *Sagami*. She was afterwards retroceded to Russia, but was destined never to return to the Baltic, a *U*-boat torpedo or mine putting an end to her career in January, 1917, while she was serving in the Eastern Mediterranean.

Messages from the Far East dealing with the recent civil strife in China give some details of the naval events which occurred in connection with the flight of Sun Yat-sen, the former President of the Cantonese Government. Sun took refuge on board a gunboat of the Canton flotilla, which remained loyal to him, and with four other vessels steamed up the river, finally anchoring in front of the Shameen, where his enemies could not bombard him without jeopardizing the foreign settlements. The opposing faction under General Chen Chung-ming had previously seized the Whampoa forts, and prepared to give Sun's ships a warm reception if they ventured up the river. It was necessary to do this, however, as a battery of 4-in. guns had been mounted lower down the river, and the flotilla was therefore exposed to a cross-fire. Finding their position untenable, all five ships weighed and proceeded up-stream at their best speed. A fierce fire was opened on them from fort and battery, but, thanks to poor visibility and wild shooting, they got through with only slight damage, the only serious hit taking effect on a destroyer, which had ten casualties. As soon as the flotilla came to anchor off the Shameen Bund, near the foreign gunboats, the Chinese commander was informed that strong action would be taken if he fired a single shot from his ships. Meanwhile H.M. gunboats *Moth* and *Tarantula* and an American destroyer cleared for action. Sun Yat-sen was requested to take his flotilla elsewhere, but this he refused to do, and eventually it was decided that he should remain there on undertaking not to open fire unless attacked by Chen Chung-ming.

Schiffbau reports the launch at Horten naval arsenal, on August 1, of the first submarine ever built in Norway. The earlier boats *A1* (ex-*Kobben*) to *A4* were built at the Germania Yard, Kiel, and have a surface displacement of 225 to 250 tons. The two new submarines, *B1* and *B2*, are considerably larger than those constructed in Germany, their length over all being 167.3 ft., the greatest breadth 17.4 ft., and the displacement 420 tons. On the surface they will be propelled at a speed of 14½ knots by Diesel engines supplied by Sulzer Brothers of Winterthur, while the electro-motors, which are entirely of Norweigian manufacture, will give a submerged speed of 8½ knots. Immediately after the launch of *B1* she was subjected to pressure and watertight trials, which in the absence of a pressure dock were carried out by lowering the boat to a depth of 164 ft. by means of a large floating crane. Work was begun on this vessel as long ago as 1915, but the abnormal conditions prevailing in the war and post-war period greatly retarded her construction. It is hoped to have *B1* ready for her sea trials early next year. The second boat, *B2*, is still on the stocks, and is not expected to take the water for another twelvemonth.

The following notes on the Russian Baltic Fleet come from a correspondent who is usually well-informed, but they are given here with all reserve: "The fleet at Kronstadt is much weaker than the Admiralty Return would lead one to believe. Of the battleships only the *Sebastopol* (now *Marat*) is really efficient; not one of the others could get to sea unless they had months of hard work put into them by skilled artificers. The number of efficient destroyers is very hard to estimate with accuracy, but I put it at twelve, with probably the same number of submarines. From the larger vessels quite a number of guns, from 4.7-in. downward, have been commandeered by the army and mounted on field carriages, and many searchlights have been removed for the same purpose. The dockyard at Kronstadt is practically deserted, and it is long since any serious

work was done there. The German Mission which was reported to be on its way to reorganize the yard had not arrived by the middle of July. Finnish shipping men scoff at the idea of the Red Fleet as a serious proposition, and declare that they would tackle it single-handed if they could only get a few discarded warships from one of the Powers. On the other hand, there are reports that the fleet is being thoroughly overhauled and refitted, also that Trotsky is doing his best to induce former officers of the Imperial Navy to rejoin the service by promising them a free hand as regards discipline. The one fact which seems beyond dispute is that the Baltic Fleet is at present a negligible quantity, whatever it may be a year or two hence."—Hector C. Bywater in the *Naval and Military Record*, 13 September, 1922.

THE MATERIAL OF NAVIES.—With the relative strength of the principal Sea Powers in capital ships fixed for the next ten years by the Washington Conference, the tables of battleships and battle cruisers contained in the recent official Return of Fleets, issued at the request of Lieutenant-Colonel Sir Alan Burgoyne, lose a good deal of their interest. Much the same is true of the section showing cruisers, for these vessels belong to quite an obsolete class, and, except for the British *Courageous* and *Glorious*, completed in 1917, are all ships completed well before the outbreak of the war. The monitor table might also be passed over but for the interesting group of Italian vessels of the *Monte Cengio* type. Completed in 1918-19, these ships, which were not listed in the *Return* last year, are of 575 tons, and carry one 15-in. gun and a machine gun apiece. They are propelled by internal combustion motors of 700-horsepower. Two smaller craft of 360 tons, the *Cucco* and *Vodice*, each carry a 12-in. gun. Doubtless the Italians evolved these designs out of the needs revealed in the war, when British monitors lent to them were able to bombard the Austrian positions and communications on the Lower Isonzo and other places. But it will be interesting to see whether the craft are retained in the postwar Italian Navy.

Coming to the light cruisers, a type of increasing importance in future fleets, an examination of the Return will show how unreliable mere numbers are as a guide to comparative strength. The British Navy is credited with fifty-one such vessels (including five for the Dominions); America with nine; Japan, twelve; France, five; Italy, ten; Russia, one; and Germany, three. But these vessels range in displacement from the 3,218 tons of the Italian *Quarto* to the 9,750 tons of the British *Hawkins;* and while all but two of the British vessels are under ten years of age, all the American ships are fourteen years of age or over, and one, the *Cleveland*, was launched as far back as 1901. It can safely be deduced from the *Return*, however, that Britain has now the strongest light cruiser fleet of any Power, but large numbers of her war-built ships will become obsolete before very long, and when that happens the building program of America and Japan will make them serious rivals to us in this respect, even if they do not surpass us. America has in hand the ten 7,500-ton vessels of the *Omaha* type, each mounting twelve 6-in. guns; and Japan thirteen vessels of the *Kuma* and *Kinu* types, each armed with seven 5.5-in. guns. It is rather surprising that no light cruisers are in hand for Italy.

In the important matter of aircraft-carriers, the *Return* shows little change from last year. The British Navy has the same four vessels, the *Furious, Argus, Pegasus* and *Ark Royal*, with the *Hermes* and *Eagle* under construction. The United States, too, has the same ship, the *Langley*, but in her building list, in place of the 14,240-ton ship *Wright*, an ex-merchantman which was included last year but has now disappeared, there are the two ex-battle cruisers *Lexington* and *Saratoga*. A new aircraft-carrier in the Japanese Fleet is the *Wakamiya*, but she is a comparatively small vessel of 7,600 tons, and was originally a naval transport.

There are four aircraft-carriers building for Japan, the *Hosho* and *Shokaku*, and the ex-battle cruisers *Akagi* and *Amagi*. For France there is completing the ex-battleship *Béarn*. This country, therefore, although it has fewer aircraft-carriers altogether than were used for the Grand Fleet alone during the war, is at present well ahead of the other Powers in this respect. But this class of vessel is still in the tentative stage, as was recognized at Washington when it was specifically laid down that "all aircraft-carrier tonnage in existence or building on November 12, 1921, shall be considered experimental, and may be replaced, within the total tonnage limits, without regard to its age."—*Army, Navy, and Air Force Gazette*, 26 August, 1922.

SIR PHILIP WATTS' VIEW.—In the course of a lengthy letter to *The Times* Sir Philip Watts made a notable contribution to what he himself terms "the great sea and air controversy." None can be better qualified than the famous ex-Director of Naval Construction to speak upon this subject: no opinion will command more respect than his amongst those who seek for such enlightenment as can be shed by the views of high authority upon the great problem. For it is to the genius of Sir Philip Watts that we owe the Dreadnaught. Others may have seen—undoubtedly did see—that the all-big-gun ship was indicated by the experience of *Tsushima*: Sir Philip Watts designed her. In the course of his letter he points out how, in the earlier classes of the Dreadnaught type, the chief difficulty with which his department had to cope was to devise protection against torpedo attack. For the submarine was the urgent menace in those days; not the aircraft. During the Great War the pre-Dreadnaught battleships which were torpedoed—as in the Dardanelles—came off very badly. On the other hand, the only three ships of the Dreadnaught era (*Audacious*, *Marlborough*, and *Inflexible*) which were seriously damaged by under-water attack withstood the onslaught, and but for a combination of bad weather and bad luck we now know that the first-named vessel would have been saved.

The point which Sir Philip Watts manifestly seeks to emphasize is that, just as the growth of the torpedo menace resulted in a satisfactory development of protective measures, so is the aerial threat likely to bring a corresponding antidote. Even if the aircraft had not entered into the category of hostile conditions against which the capital-ship designer has to provide, the great increase of range of naval artillery has produced a very similar form of problem. For a projectile discharged from a range of 20,000 yards has such a high trajectory that it spends what gunners term its remaining velocity in a nose dive. In fact, plunging fire is so much akin to aerial torpedo attack in its effect that even had the latter not come into existence the naval designer would have had to devise resistance against the former. "What we did not contemplate with the Dreadnaughts," writes Sir Philip Watts, "was that descending shell could penetrate our upper and main decks and fittings and travel considerable distances before exploding; it was anticipated that the shock would cause the fuse to act and the shell to burst before reaching the protective deck." In short, the delay action fuses which the Germans employed to such deadly advantage both in sea and land warfare had not then been contemplated.

It may well be that the new methods of attack will result in a revolutionary change in the whole system of armor protection. Since the capital ship is more likely to be menaced in future by attack from the air or from under the water than by direct broadside fire, her broadside belting may have to be distributed over her deck, and broadside protection effected by means of "blister" sides and honeycomb bulkheads. The naval architect cannot impose more than a certain limited ratio of weight upon total displacement, and this is bound to be reduced in proportion as it is placed

higher in the hull. Probably the one salient point which the experiments with aircraft versus armored ships is intended to solve is the relative value of broadside and deck protection under present-day conditions.

It is gratifying to find that, in conclusion, Sir Philip Watts expresses himself as "strongly in favor" of the policy of the Admiralty in deciding to lay down two new battleships. He reminds us experience has shown that the serious possible hits, whether from the sea or from the air, will very seldom be made against a fleet maneuvring in battle. At Jutland the *Marlborough* was the only British ship struck by a torpedo, although large numbers of torpedoes were fired by the Germans. Indeed, Sir Philip Watts declares that if the later classes of Dreadnaughts were "suitably strengthened" they would give a good account of themselves in any war which might take place within the next fifteen or twenty years. It is our belief that the bulk of naval opinion holds the same view: a view which must necessarily be greatly strengthened by the exceptional qualifications of the authority who now confirms it.—*Navy and Military Record*, 23 August, 1922.

CURRENT NAVAL AND PROFESSIONAL PAPERS

"The Design of Shallow-Draught River Steamers"—*Engineering*, 25 August, 1922.

"The Sulzer Two-Stroke Diesel Engine" (Illus.)—*Engineering*, 25 August, 1922.

"The Oil Supply of the World."—David White in *Mechanical Engineering*, September, 1922.

"The Influence of Rivet Holes on Steel Structures" (Illus.)—*Engineering*, 8 September, 1922.

"Tests of Concrete in Sea Water"—by L. C. Watson, in *American Society of Civil Engineers*, September, 1922.

"Tests of a 60,000 Kw. Cross-Compound Triple-Cylinder Steam Turbine" (Illus.)—*Engineering*, 1 September, 1922.

"Some Devices of War": (1) "Use and Abuse of Submarines," by Rear Admiral W. F. Fullam, U. S. N. (2) "Aircraft vs. battleship," by Captain R. C. Smith, U. S. N. (3) "Chemical Warfare in the Future," by Captain J. M. Scammel, Chief O. R. C.—*North American Review*, October, 1922.

"Notes on Water Work in Submarine Mining," by Lt. Col. John M. Dunn, C. A. C.—*The Coast Artillery Journal*, August, 1922.

"The Northern Blockade. A Lecture Delivered at the Royal Artillery Institution," by Admiral Sir Dudley R. S. de Chair,—*The Journal of the Naval Artillery*, May, 1922.

"Gliding Experiments in Europe—1922" (by an eyewitness).—Edward P. Warner in *Aviation*, 25 September, 1922.

"Air Power and the Empire"—*The Nineteenth Century Review*, September.

"The Helicopter and the Variable Pitch Propeller"—*Mechanical Engineering*, September, 1922.

"The Earth Inductor Compass" (for airplanes.)—*Proceedings of the American Philosophical Society*, Vol. LXI, 1922, No. 1.

"Technical Requirements of Pursuit Aviation" (Illus.), by William D. Tipton, in *U. S. Air Services*, September, 1922.

"Duplex Radio Telephone Transmitter"—*General Electric Review*, August, 1922.

"The Naval War College—An Appreciation," by Maj. R. H. Smith, C. A. C.—in the *Infantry Journal*, September, 1922.

"The Strategy and Tactics of Small Wars," by Maj. S. H. Harrington, U. S. M. C.—in the *Marine Corps Gazette*, March, 1922.

"Battleships,"—by Admiral Sir Cyprian Bridge and Rear Admiral Sir Eardley Wilmot—in the *Nineteenth Century Review*, September, 1922.

"The Race for Sea Power" (Anglo-American merchant marine competition), by Archibald Hird,—*Fortnightly Review,* September, 1922.

"The Irish Free-State and British Empire Defense," by Major General Sir George Aston,—*Fortnightly Review,* September, 1922.

"Far Eastern Reflections," (Japanese Policies Criticized), by H. K. Norton—*Contemporary Review,* September, 1922.

"The American Shipping Bill," by C. E. Foyle,—*Edinburgh Review,* July, 1922.

"Pertinent Articles," in—*American Journal of International News* for July, 1922:

(1) "Some Aspects of the Work of the Department of State," by Charles E. Hughes.

(2) "Some Observations on the Conduct of our Foreign Relations," by Charles E. Hughes.

(3) "Seizures in Land and Naval Warfare Distinguished," by M. O. Hudson.

(4) "The Rights of Visit and Search, Capture, Augary, and Requisition," by J. C. Wise.

(5) "Orders in Council and the Law of the Sea," by G. E. Sherman.

New Quarterly on Foreign Affairs.—The first number of a new American quarterly review entitled *Foreign Affairs* appeared on September 15. The review is edited by A. C. Coolidge, of Harvard University. The leading article is on "Popular Diplomacy" by Elihu Root. Among others may be noted "The Policy of France," by André Tardieu; "The Little Entente," by Edward Benes; and "The Mandates in the Pacific," by George H. Blakeslee. The purpose of the magazine is to promote American discussion and knowledge of international affairs. An appendix gives a valuable list of current books and source material on the subject.

NOTES ON INTERNATIONAL AFFAIRS

FROM SEPTEMBER 5 TO SEPTEMBER 25

PREPARED BY

ALLAN WESTCOTT, Professor, U. S. Naval Academy

NEAR EAST

RESULTS OF TURKISH VICTORY.—Following the capture of Afiun Karahissar in August, the Turkish forces in Asia Minor advanced steadily and by a series of victories in the first week of September, forced the surrender of Smyrna and the evacuation of Greek troops from Asia Minor. The Turkish forces entered Smyrna on September 9. On September 11 a fire swept the city, leaving at least 200,000 Christian refugees. Many Christians were deported to the interior.

BRITISH PROPOSE ALLIED ACTION.—On September 12 the British Government proposed to the French and Italian Governments concerted action to assure the defense of Constantinople and the neutral zone of the straits. The British Atlantic fleet was despatched to the Mediterranean and a call for aid was sent to British Dominions.

Although the Entente Commission at Constantinople warned the Kemalist representative as to the serious effect of an invasion of the neutral zone, the French and Italian forces were withdrawn from the eastern side of the Dardanelles, only the British remaining. In France, the Turkish victory was regarded as favorable to French aims, and a passive attitude was advocated.

On September 19 it was reported that the French Government had received from Mustapha Kemal a promise not to enter the neutral zone upon the understanding that Turkey should receive Eastern Thrace up to the Maritza river, including Adrianople.

JOINT NOTE TO TURKS.—After much discussion the Allied Governments on September 23, reached agreement and dispatched a joint note to Mustapha Kemal, as follows:

The three Allied Governments ask the Government of the National Grand Assembly to be good enough to let them know if it is disposed to send without delay representatives with full powers to a meeting to be held at Venice or elsewhere and to which will be invited also, with the representatives of Turkey, plenipotentiaries of Great Britain, France, Italy, Japan, Rumania, Jugoslavia and Greece.

This meeting will take place as soon as necessary arrangements are made by the Governments concerned. The object of this meeting will be

to negotiate and consolidate a final treaty of peace between Turkey, Greece and the Allied Powers.

The three Governments take this opportunity to declare that they view with favor the desire of Turkey to recover Thrace as far as the River Maritza and including Adrianople.

On condition that the Angora Government does not send armies during the peace negotiations into zones, the provisional neutrality of which has been proclaimed by the Allied Governments, the three Governments will willingly support at the conference attribution of these frontiers to Turkey, it being understood that steps will be taken in common agreement in the treaty to safeguard the interests of Turkey and her neighbors, to demilitarize, with a view to the maintenance of peace in certain zones to be fixed; to obtain peaceful and orderly re-establishment of Turkey's authority, and finally to assume effectively under the League of Nations maintenance of the freedom of the Dardanelles, the Sea of Marmora and the Bosphorus, as well as protection of religious and racial minorities.

For the rest, the three Allied Governments will willingly support the admission of Turkey to the League of Nations. They are in agreement in reaffirming their assurance, given in March last, that they will withdraw their troops from Constantinople as soon as the treaty of peace has entered into force.

The three Allied Governments will use their influence to procure before the opening of the conference the retirement of the Greek forces to a line to be fixed by the allied Generals in agreement with the Greek and Turkish military authorities.

In return for this intervention the Government of Angora will undertake not to send troops, either before or during the peace conference, into the zones of neutrality which have been previously declared and not to cross the Straits or the Sea of Marmora. In order to fix the above-mentioned line, a meeting might immediately take place between Kemal Pasha and the Allied Generals at Mudania.

The Allied Governments are convinced that their appeal will be listened to and that they will be able to collaborate with the Turkish Government and their allies to establish peace, for which the whole civilized world is longing.

(Signed) POINCARE.
CURZON.
SFORZA.

TURKISH REPLY.—While negotiations were proceeding, Turkish forces entered and intrenched within the neutral zone. It was reported that the Turkish reply to the Allied invitation would be acceptance on condition that military movements be permitted during the Conference, and that Russia, Persia, and Bulgaria be allowed to take part. In case this reply was satisfactory the preliminary armistice conference to arrange for the cessation of hostilities between Greeks and Turkish Nationalists would be held at Mudania, on the Sea of Marmora, on or about October 2.

ABDICATION OF CONSTANTINE.—As a result of revolt in the army and navy and popular hostility following the defeats in Asia Minor, King Constantine of Greece abdicated on September 27, in favor of his son, Crown Prince George.

GERMANY

ARMY OCCUPATION EXPENSES.—Two articles in the September, *Fortnightly Review*, one by Dr. E. J. Dillon, quote from German sources extraordinary figures regarding the expenses of Allied forces in the occupied territory. According to these figures, there were on January 1, 1921, 131,000 men in the occupying armies. The Rhineland High Commission has expanded from 4 to 1,300 officials, who have expended money lavishly for personal accommodations. According to British figures Germany up to February, 1922, had paid £46,000,000 reparation to Great Britain, and the cost of the British Army of Occupation has been £53,000,000.

SETTLEMENT WITH BELGIUM.—On September 1, the Allied Reparation Commision gave Germany the privilege of suspending reparation payments upon conclusion of an agreement with Belgium for acceptance of six-month bonds in lieu of the 270,000,000 gold marks, due by priority to that nation. Germany at first proposed to the Belgian Government payments extending over eighteen months, and latter declared its inability to fulfill Belgium's demand for a deposit of 100,000,000 marks in gold in some foreign bank as security. The Belgian conditions were finally met by the deposit of German gold or securities abroad in a location not revealed as collateral for a guarantee of the bonds by the Bank of England.

RESTORATION AGREEMENT.—On September 5 it was announced that Hugo Stinnes, the German industrial magnate, had concluded a private agreement with French co-operation societies for the supply of thirteen billion francs' worth of German building materials for the restoration of French devastated regions, the cost to be credited to Germany's reparation account, with six per cent profit to Stinnes.

LEAGUE OF NATIONS

MEETING OF ASSEMBLY.—The Third Assembly of the League of Nations met at Geneva on September 4. Augustin Edwards, head of the Chilean delegation, was elected president. The Peruvian delegation was not present and Bolivia formally withdrew on September 10. Special committees were appointed to consider the problem of financial aid for Austria, the Cecil plan for disarmament, and other problems on the agenda. The Assembly later adopted the Council's proposal that the number of small states represented in the Council be increased from four to six. This in future will give the small states a majority, but the four great powers in the council are protected by the rule requiring unanimity on all important questions. The action was taken as a result of agitation against the domination of the Council by the Allied powers. Proposed changes in Article X of the League covenant were shelved until next year.

CECIL DISARMAMENT PLAN ADOPTED.—Geneva, Sept. 13.—The Disarmament Committee of the Assembly, on which all members of the League of Nations are represented, adopted today a resolution embodying Lord

Robert Cecil's plan for a series of protective treaties. The resolution instructs the Permanent Disarmament Commission to prepare in consultation with the Governments a treaty on the lines laid down by Lord Cecil and asks that the Governments give formal adhesion before the next session of the Assembly in September, 1923.

Chief interest in the plan centers in a European peace compact, Europe being the continent most in need of peace. The British, French and Italian Governments have gotten behind the Cecil plan and are pushing it. First England favored it, and France has swung well into line.

Today's motion provided for the drafting of a treaty by the commission alone, its submission to the Governments, and a request that these give a yes or no reply to the next assembly. M. de Jouvenal, France, argued that the proper step was to consult the most important Governments in drafting the treaty, so that when finished their adhesion would be assured. This plan was adopted.

Lord Cecil is Chairman of the Permanent Disarmament Commission and will direct the drawing up of the treaty. The action of the committee today is sure to be approved formally by the Assembly. It is intended to have the treaty submitted to all the Parliaments before next September. If England, France, Italy, Spain and Czechoslovakia can agree on the terms the treaty will have important promises.—*New York Times*, 14 September, 1922.

FAR EAST

JAPANESE POLICY.—Writing in the September *Contemporary Review* on the Far East, Mr. H. K. Norton speaks as follows of the results of the Washington Conference:

Those Chinese and Russians who have struggled directly against the advance of Japanese arms and who are most distrustful of Japan's methods point to the agreement upon the limitation of naval armaments as a sinister victory for Japanese militarism. Their contention is that Japan has secured by this agreement a naval ratio which she could not hope to maintain under competitive conditions. While this ratio deprives her of the power to take the offensive against America, and thus relieves America of all fear of danger to her Pacific Coast, it is equally effective in depriving America of the power to take action against Japan in Asian waters. As pacifist theory this is wholly commendable. But in the eyes of Koreans, Russians, and Chinese, who are in various stages of suppression by Japanese arms, it appears little short of a catastrophe. It means to them that Japanese militarism is to have a free hand on the continent of Asia, and that the one friend to whom they have hitherto looked for assistance had rendered herself powerless to help them. The only ray of light they can see now is the possibility of Great Britain and America joining together to restrain Japan, a ray which does not do much to dispel the gloom of their despair.

Of the situation in Shantung he remarks that the Japanese are to all appearances carrying out in good faith the agreement to turn over the railway to China, yet have demanded the $30,000,000 paid by Germany plus $168,000,000 for Japanese improvements. This sum is prohibitive, though Japan has intimated a decrease if China proves herself "sincere," in other words grants satisfactory concessions elsewhere.

In Southern Manchuria the twenty-five-year lease of the Liaotung peninsula and the railway to Mukden, which Japan took over from Russia, will expire next year. China refuses to recognize the validity of the

ninety-nine-year extension extorted as one of the Twenty-one Demands. The administration of the railway through the rest of Manchuria is also an unsettled problem. At present it is under an Inter-Allied Board, with five Russians and six Chinese as directors.

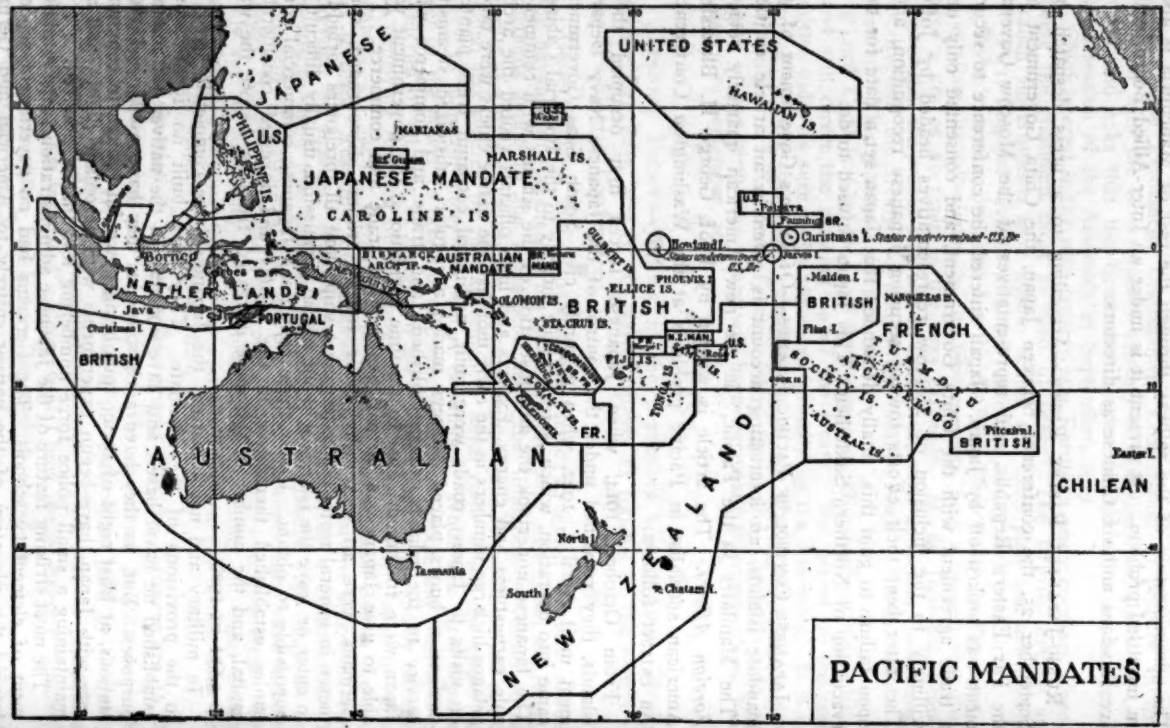
RUSSO-JAPANESE PARLEY ENDED.—According to a press despatch of September 25, the conference between Japan, the Chita Government of the Far Eastern Republic, and representatives of the Moscow Government was broken off by Japan. Japan entered the conference to secure a trade agreement with the Chita Government, and consented only unwillingly to the inclusion of Moscow representatives headed by Joffe. The latter bent their efforts toward securing Japanese recognition, and, upon failure to gain this, finally demanded that Japan set a date for the evacuation of Northern Sakhalien. This Japan refused to do.

JAPANESE CONTROL OF PACIFIC ISLANDS.—Of Japan's Government of its mandate islands, an interesting account is given in an article entitled "The Mandates in the Pacific," in the new American quarterly review *Foreign Affairs*. The article is written by Prof. George H. Blakeslee, American specialist in Pacific problems at the Washington Conference. An extract follows:

From October, 1914, when Japanese forces first occupied these islands, they remained under the control of the Japanese Navy Department until April 1, 1922, when a purely civil South Seas Government came into operation, which is responsible directly to the Imperial Cabinet. The Japanese undertook the administration of the islands with commendable earnestness and energy. Experts and high officials visited the archipelagos in large numbers in the early months; the native chiefs were taken on visits to Japan; roads were built, additional cocoanut trees planted, navigation buoys placed, surveys made; a regular subsidized steamship service to the islands was established; and trade and commerce with Japan were furthered. Due to wartime regulations, the government was able to give Japanese a virtual monopoly of trade and commerce. The Germans were all sent away, other foreign traders discouraged, commerce in general restricted to Japanese ships, and all foreigners forbidden to enter or leave the islands without special permission, usually difficult or impossible to obtain. Under these conditions Japanese commercial companies established themselves in the islands and invested considerable capital, and the number of Japanese increased from 83, before the war, to 3,671 in 1920.

In military and naval matters the Japanese have completely lived up to the provisions of the Mandate. They have built no fortifications, established no naval bases, and have not trained the natives for military purposes. But, as they have a right to do, they have established radio stations, at least eight of them, four being powerful enough to communicate with Japan, have begun experiments with aeroplane flights, and are maintaining a small police force numbering less than a hundred.

The most striking feature of the Japanese administration is the establishment of elementary schools. The Germans had no government schools, leaving the education of the natives entirely to American and German missions; but the Japanese Government, with much the same spirit which actuated the American Administration in the Philippines, is extending



From September *Foreign Affairs*

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elementary schools as rapidly as possible and requiring the attendance, wherever the schools are available, of all children from 8 to 15 years of age. Wherever government schools have been established, the school authorities have refused to allow native children of school age to attend the mission schools.

The Japanese administration as a whole has been energetic, progressive —as is shown by their schools and by their care for the health of the natives—and in general fairly efficient. On the other hand, there has been over-administration, a too careful supervision of details, too many officials, occasional annoyances and injustice due to petty naval officials, and an attempt to hustle the simple natives too fast.

As to American rights and interests, the Japanese, the past few years at least, have been placing no obstacles in the way of the evangelistic work of the American missions. The regulation, however, forbidding native children between 8 and 15 to attend the mission schools would appear to be in violation of the new treaty regarding the Mandate, although they may reasonably insist upon proper educational standards in these schools and upon instruction in Japanese. With the inauguration of the new civil government, this regulation, as well as those which have practically closed the islands to American trade and commerce, will naturally be modified.

REVIEW OF BOOKS

NAVAL OPERATIONS, VOL. I (TEXT) TO THE BATTLE OF THE FALKLANDS, DECEMBER 1914. By Sir Julian S. Corbett. (Longsman & Co. Price $6.50.)

A Review by Rear Admiral Albert Gleaves, U. S. Navy.

The *Official History of Naval Operations* is to be completed in several volumes, probably five or six. The series will be an invaluable contribution to the literature of the World War.

As an accurate and concise writer of British naval history, Sir Julian Corbett is well equipped for this task, and his selection by the Admiralty to write the official history is peculiarly appropriate. The initial volume justifies the choice. Although the Admiralty accepts no responsibility for the opinions of the author, the archives have been placed at his disposal, and the history will therefore bear the stamp of authenticity.

The Introduction is an epitome of the book, and the ensuing chapters amplify the operations on the Belgian coast, the offensive against the German overseas possessions, development of submarine warfare, the exploits of the commerce destroyers, the convoy of troops during the imperial concentration, and what is aptly called the "deployment" of the fleet over the world.

The description of the naval fights and skirmishes is stripped of dry technicalities and will interest the lay reader as well as the professional, and yet nothing essential is omitted, from the outpost affair of the *Amphion* and *Königin Luise* in which both vessels were sunk (August 5-6) to the decisive battle of the Falklands (December 8) "which completed the winning of the outer sea."

The physical labor of compiling the material for the history must have been enormous, but the author is clearly what Matthew Arnold used to call architectonic. His logical arrangement of the great train of events which were crowded into those five months with bewildering complexity proves him to be a master-builder in his craft. Moreover he is just and temperate in his analysis, although many of the events he records spelled disaster or disappointment to British arms at sea.

It will not be a matter of surprise to be told that when war came the navy was ready—"the Home Fleets were even in a state of readiness beyond what the War Book provided." Undoubtedly Sir Julian Corbett refers only to the readiness of the individual ships and the organization and discipline of the fleet; otherwise the statement is at variance with the testimony of other competent writers. Mr. Filson Young, who served on

Admiral Beatty's staff, and who is the author of the brilliant book "With Beatty in the North Sea" says "The Navy was ill-equipped for the task it had to perform; its equipment had to be learned and improvised under the immediate peril of war, etc., etc." Lord Haldane in a speech in the House of Lords, May 4, 1921, said, "We do not seem to have thought out the proportion in which destroyers were required to battleships and battle cruisers, nor were we adequately provided with submarines. Our mines were too few, but were relatively speaking, defective."

The *Admiralty War Book* or *War Plans* begun at the instigation of Mr. Asquith in June, 1911, was practically completed at the eleventh hour in June, 1914. It was worked out in great detail. Telegrams by the thousands arranged in order of priority, and letters and instructions in addressed envelopes were prepared for issue. When the time came it required only the pressure of a button to put the war machinery in motion. In spite of all this, however, and that the war plans were made by representatives from the Admiralty, War Office, Home Office, etc., there was according to Lord Esher a "want of co-operation between the navy and the War Office during the first five months."

When war was declared it was a surprise to many that the Grand Fleet and the High Seas Fleet did not make contact at once and fight it out, but notwithstanding the German longing for "the day," the numerical superiority of the British Fleet more than offset the material superiority of the Germans, and both sides realized that there was too much at stake to chance or risk a decisive action in the beginning. It will always be a matter of conjecture, though, why the Germans did not make a determined submarine attack on the inadequately screened fleet at Scapa in the early days. A success at that time would have had great moral effect.

But there was much work for the fleet beside fighting a fleet action. German commerce destroyers were out on the trade routes, and the trade routes were the arteries of the British Empire. Von Spee's squadron somewhere in the Pacific had to be reckoned with and disposed of before attention could be concentrated on the High Seas Fleet; there were insistent demands for coast protection, especially after the East Coast raids; and protection also had to be given to the troop convoys.

Sir Julian Corbett's defense of the Admiralty against criticisms, and his story of how all the complex situations were handled—not without mistakes, of course—by the people in the dim, gloomy corridors at Whitehall, throws much light on the tremendous problems which had to be solved during the autumn of 1914.

Germany's naval problems were simpler but no less difficult. In her isolated position from the sea, she had no access to blue water except by routes barred by British ships. Her colonies were inadequately defended, and she had no advanced bases in the Mediterranean or the Indian

Ocean. Her great asset was the Kiel Canal which gave her command of the Baltic, isolated Russia, and secured her communications with Sweden. It also gave her another entrance to the North Sea.

Before the World War the German Navy had no traditions. Their only sea fight had been the minor engagement between the *Meteor* and *Bouvet* in the war of 1870 off the coast of Cuba. They were gunboats which met by accident in the Bahama Channel; after a few shots both craft broke down and a passing kind-hearted neutral towed them into Havana. The Germans made the most of it, and the affair was commemorated in a large oil painting which was placed in a flamboyant frame and hung in the offices of the Minister of Marine in Berlin. In the period covered by the first volume of the *Official History* the German Navy created traditions, by the exploits of the *Emden, Königsberg,* and *Karlsruhe,* and the two great fights of Von Spee. To its courage and efficiency Sir Julian gives generous testimony.

The *Emden* ran her brilliant and meteoric course in four months. Five days after her loss, we now know that the *Karlsruhe* was blown up off Barbadoes, November 5, but her mysterious end was kept secret and long after she ceased to exist she continued to occupy British cruisers. In the three months of her career she had taken or sunk sixteen British vessels, and one Dutch on British charter, a total of 76,000 tons.

The *Königsberg* was a menace to trade and troop convoys, and served to divert British cruisers and annoy the Admiralty, but actually did little harm, and was finally blockaded the last of October.

In the North Sea there was much activity from the beginning, and the British suffered several disasters. The loss of the three *Cressys,* which occurred within the hour early on September 22, is regarded by the author as "another tragedy added to the useless sacrifices which never cease to darken naval memory," but the splendid conduct of the senior officer present more than half redeems his errors of judgment and disregard of orders.

The end of the year marks the end of Volume I with the defeat of Cradock, and Sturdee's victory. It will not detract from the interest of the book to turn briefly to these two events. Off Coronel the British lost a squadron but gained a tradition. Within a year and a half of the battle, Mr. Balfour in the eulogy he pronounced at Admiral Cradock's memorial said: "What, then, was his design in attacking a force obviously greatly superior to his own; a force which, except by some extraordinary accident, some stroke of unexpected fortune, he could not expect to successfully cope with? Was it that he refused to count the risks? Such deeds of uncalculating daring make our blood tingle within us. Yet there is, after all, a higher wisdom, a higher courage than such daring, and that higher courage I believe Admiral Cradock to have possessed."

At quarter past six in the evening of October 12, four days after it

was sent, the Admiralty received a cable from Admiral Cradock to the effect that indications showed the possibility of the three light cruisers of Von Spee's squadron joining up with the *Scharnhorst* and *Gneisenau*, and that he had ordered the *Canopus* to Falkland Islands, and that he intended to concentrate there.

The First Lord replied at once: "In these circumstances it would be best for the British ships to keep within supporting distance of one another," and also: "They [the German ships] and not the trade are our quarry for the moment. Above all we must not miss them."

The Admiralty in a cable (October 28) countermanded Cradock's orders for the *Defense* on the east coast to join him, and informed him "there is no ship available for the Cape Horn vicinity." It is doubtful if Cradock received this, and at any rate it could not have affected his dispositions.

The Admiralty considered that if Von Spee went north he would meet a superior force of British and Japanese ships, and if he went south he would meet Cradock's concentrated force with the *Canopus*.

The battle of Coronel was an accident. The Germans running south thought they had only the *Glasgow* ahead of them, and Cradock steaming to the northward expected to meet only the detached cruiser *Leipzig*. But at 4:30 P. M., November 1, 1914, the *Glasgow* located the German squadron coming down the coast, and at 6 o'clock the squadrons were in sight of one another, the Germans inshore, and the British silhouetted against the evening sky.

The main action was fought on parallel courses, magnetic south, in a heavy sea and a moderate southwest gale with the light and visibility entirely in favor of the Germans. It lasted only an hour, and night fell on the most decisive defeat ever suffered by the British at sea.

The two squadrons were practically the same tonnage, but the British ships were heavily outgunned by the two heavy German cruisers which carried sixteen 8.2 in all, but only twelve could be used on broadside; opposed to these the British had only two 9.2 guns. Of lighter guns the British had thirty-two 6-inch against the Germans' twelve 5.9.

Unfortunately the British six-inch guns were placed so low down (in the County Class) that they could not be fought in a seaway, a defect which certain American officers discussed with officers of the *Lancaster* and *Monmouth* at Gibraltar when the ships were first commissioned in 1903. In speed the Germans had some advantage, but their great superiority lay in their smartness, and their splendid gunnery which was largely due to their director-system of firing. Besides the *Scharnhorst* had won the gold medal for shooting.

Fire was opened by the Germans at 12,000 range, which had closed to 4,500 when the *Monmouth* was put out of action.

The only possible hope Cradock had for winning the fight unsupported by the *Canopus*, lay in some hidden chance that "as by a stroke of the enchanter's wand," to quote Lord Balfour, he might inflict greater

damage to the enemy than he himself received. That is all that can be said. He had the happy fate of not living to explain.

Admiral Cradock told an American officer at Vera Cruz just before war was declared that if he ever went into action, he intended to follow the ancient custom of his forebears and fight in his cocked hat and epaulets. One wonders if he did. But his tragic end did not call for this dramatic touch. Sir Julian says: "It is not without emotion that one contemplates the feeling of so fine an officer when suddenly he found himself face to face with the hopeless situation into which against all his protests and against his better judgment, he clearly believed himself to have been forced. A cloud that can never be lifted has fallen on one of the most tragic moments in our naval history. All we can ever know is the silver lining. For whatever he thought and felt, Admiral Cradock did not flinch."

His ship went down in the angry sea as the moon rose above the rugged Chilean coast. Tennyson's lines quoted by Lord Escher in his account of Kitcheners death are equally applicable to the passing of this sea Knight:

> "And even then he turned; and more and more
> The moony vapors rolling around the King,
> Who seemed the phantom giant in it,
> Enwound him fold by fold, and made him gray
> And grayer, till himself became a mist,
> . . . . moving ghost-like to his doom."

Disasters had come fast to the British Admiralty which was now "stung into an activity which for reach and completeness had never been equalled in our annals" (p. 369).

Lord Fisher took the helm at the Admiralty, and at once the force of his impetuous character was made manifest. On November 11, Admiral Sturdee flying his flag in the *Invincible* put to sea with the *Inflexible*, his objective being Von Spee's squadron wherever it might be found. After joining up with Admiral Stoddart in the South Atlantic Ocean, he proceeded with the combined forces to the Falkland Islands and arrived at Port Stanley December 7. At once he began coaling, and at the same time allowed the *Bristol* and *Cornwall* to open up their engines.

The *Canopus* had returned to Port Stanley, and had converted herself into an immobile harbor defense by mooring in the mud, her heavy guns commanding the mouth of the harbor.

At 7:50 the next morning the enemy was sighted approaching. The stranger was the *Gneisenau* which Von Spee had sent on ahead to examine the harbor, expecting to find only the *Canopus*. At the startling sight of the tripod masts in the harbor, the *Gneisenau* turned at full speed to report to the admiral what awaited him.

Von Spee might have partially redeemed this mistake of approaching the harbor at the beginning of the day, instead of at the end—the same

mistake made by Captain Müller at Cocos Island—by making a dash for the entrance and forcing a decisive action when the British were the least prepared. But he preferred a stand-up fight in the open sea.

At ten o'clock the British squadron, except the *Bristol*, weighed and stood out. At this time the *Scharnhorst* was thirteen and a half miles to southward steering northward, but changed to nearly due east; at about 10:30 *Gneisenau* rejoined, and both ships continued to parallel the British squadron until 11:22 when they turned to the southeast. Sturdee, "having made up his mind not to press the action," gave the ships' companies time to wash up and "to take the next meal." The weather is variable, treacherous and changes without notice in those latitudes, but God was good to the British admiral. The sea continued calm, the sky blue, and the wind light.

At 12:51 when the range was 16,000 yards the *Inflexible* opened fire. Thereafter the main action continued at varying ranges and such changing of speed and course that the gunnery of the battle cruisers was much impaired. The smoke, too, was very bad.

Von Spee directed his three light cruisers to save themselves and to make for the South American coast, while he and the *Gneisenau* fought it out to the end. Great superiority of speed and gunpower could have decided the action in a few minutes, but the British admiral preferred to maneuver in order to save his ships. He took a chance on the weather, and won. The *Scharnhorst* sank at 4:17, and the *Gneisenau* at 6:02. The *Dresden* escaped, but the *Nürnberg* and *Leipzig* were destroyed by the British light cruisers.

Dauntless courage was displayed by the Germans in this battle, and when their ships went down the English did all that was possible for a brave enemy in rescuing the few survivors of the battle and the icy waters.

Sir Julian shows fine restraint in his comments on the conduct of the "series of chases and actions known as the Battle of the Falklands." He says: "It was in fact as the Germans admitted a fine strategical victory. Tactically it has less claim to distinction owing to the marked superiority of the British squadron, but Admiral Sturdee could claim that by this method of conducting the action he had destroyed a powerful enemy squadron without material injury to two capital ships which it was essential to return to the Grand Fleet with their fighting power intact. The risk of detaching them had been considerable, but the Admiralty by sure judgment accepted it and so had succeeded in bringing to bear at the right time and place an overwhelming superiority of force. It may be said that the fortunate meeting at the Falklands was mainly a point of luck, but it was luck fairly won on Nelson's golden rule of never losing a wind, and in any case those who designed the operation fully deserved all the credit due to plans which obtained so large a measure of success without any diminution of naval strength. What the action meant to the course of the war was that in little more than four months the command of the outer seas had been won, and we were

free to throw practically the whole weight of the navy into the main theater."

Admiral Von Spee has won a place in history with the great sea fighters of all time. He was an accomplished sea officer, skilled to a degree in his profession; he was also a brave and honorable gentleman, who has left behind him a glowing example of devotion to duty and to country for the youth of all nations. An admirable admiral!

"OLD-TIME SHIPS OF SALEM," published in 1922 (second edition) by the Essex Institute, Salem, Mass.

"SALEM VESSELS AND THEIR VOYAGES," a History of the Pepper Trade with the Island of Sumatra, by George Granville Putnam, published in 1922 by the Essex Institute, Salem, Mass.

A Review by Captain Thomas G. Frothingham, U. S. R.

Old Essex County, in Massachusetts, has been notable for its breed of sturdy mariners, who have done so much for the upbuilding of our nation. All history has shown that those who follow the sea develop qualities and characteristics which stimulate the enterprise of their communities. The men of Essex County were no exception to this rule, and in our first struggle for liberty gave proof of its truth, on land as well as on sea. We must never forget that it was Glover's Regiment from Essex County which saved Washington's Army in 1775, when it was apparently hopelessly trapped on Long Island. These seafaring men rose to the emergency and ferried the outnumbered Americans away in the night—to the amazement of the British, who thought that Washington's Army would be their sure prey the next morning. This same amphibious regiment made Washington's surprising campaign in New Jersey possible, by skillfully carrying the American Army across the Delaware through the floating ice.

Salem, in Essex County, held a leading position among American seaports for two hundred years of its history, when the whole life of the town was devoted to commerce over the distant seas. "The enterprise and self-reliance of the merchants and shipmasters of this town eventually opened commercial relations with new and distant peoples living upon the shores of all parts of the known world. It has been said with truth that Salem ships traded 'with more different peoples in Asia, Africa, South America, and the islands of the sea than the ships of all other American ports put together.'"

Most fortunately the records and relics of Salem's maritime history have been preserved in the Essex Institute and Peabody Museum. These valuable collections, from which these two publications of the Essex Institute were compiled, exemplify an American inheritance from the high

seas which is still vital in our nation—as was proved in the emergency of the World War, when the United States Navy again found that Americans still retained their ability to take to the sea.

Salem's early connection with the United States Navy was typical of the spirit of this American seaport. Salem men had done their generous share of the fighting in the American Revolution, and, after independence was won, the town of Salem made an extraordinary contribution to the Navy of our new nation. In *Old-Time Ships of Salem* the *Salem Gazette*, of July 17, 1798, is quoted as follows:

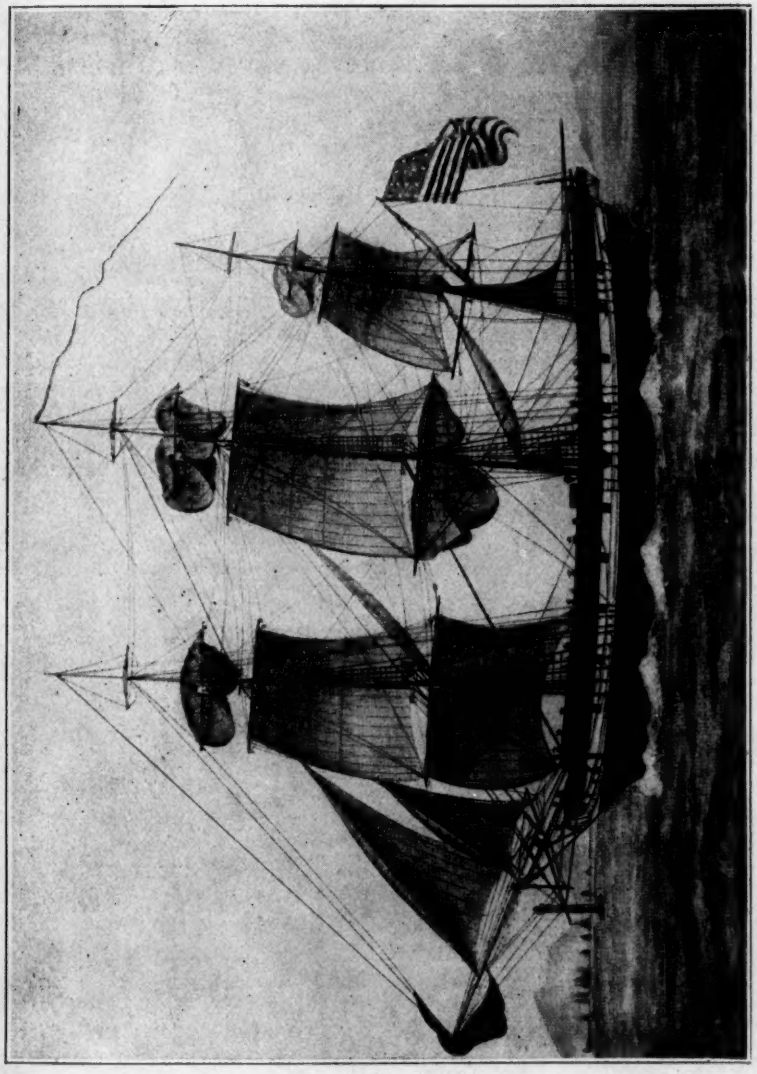
"PATRIOTIC SUBSCRIPTION"

"Last evening a subscription was begun in this town for raising money for the use of the Government, to be applied to the building of vessels, or such other purposes as Government may choose. . . . Neither ability nor patriotism is wanting." On July 24, the *Gazette* adds, "It is expected that the subscription in this town will be applied to the building of a stout frigate." This fund was used to build U. S. S. *Essex*, thirty-two guns, destined to be one of the famous frigates of the United States Navy, in the War of 1812, and the naval cradle of Farragut, whom Porter took with him as a midshipman on the daring cruise of the *Essex* in the Pacific. Lieutenant John Cowell, who had become Porter's ranking lieutenant in the last desperate fight of the *Essex* against the *Phoebe* and *Cherub*, was an Essex County man, and showed the tenacity of the breed by sticking to his duty after his leg had been shot off, dying from loss of blood.

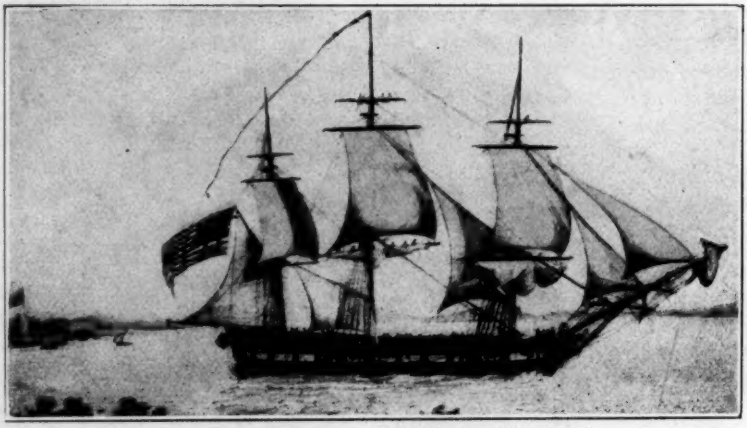
For Salem, no one can dispute the claim that the *Essex* was "a noble effort on the part of a town of ninety-three hundred people." The following extract from an advertisement in the *Gazette* showed the zest of the undertaking: "Let every man in possession of a White Oak Tree feel ambitious to be foremost in hurrying down the timber to Salem, to fill the complement wanting to maintain your rights upon the Seas, and make the name of America respected among the Nations of the World."

The fine picture of the *Essex* in *Old-Time Ships of Salem* is a reproduction of the water color in the Peabody Museum. There are twenty of these beautiful prints in color in this publication of the Essex Institute, and it has been possible to gather them for publication because one of the old Salem banks made it a custom to reproduce one of the historic ship pictures of Salem each year. The result is a most impressive and interesting memorial of the sailing ship era of our maritime history.

These Salem ship pictures are of great value because, first of all, they are faithful portraits. Each was a tribute of the captain to his own pride in his ship, and the result was that a sailorman stood over each artist, and insisted on fidelity to type and rigging. So generous was the purse of the visiting captain that there were skilled artists at many seaports ready for those commissions, of whom the most celebrated were the Roux family of Marseilles. These artists developed an almost uncanny skill in portraying each rope and block—and yet most of these paintings achieved the



THE FRIGATE "ESSEX," 32 GUNS, BUILT IN SALEM, 1799



SHIP "AMERICAN," STEPHEN WEBB, MASTER

presentation of an ensemble that is not merely a diagram of a hull and rigging. Many are attractive pictures in themselves. The Anton Roux water color of the Salem privateer *Grand Turk*, "saluting Marseilles, 1815," is actually a bold and striking composition.

The *Grand Turk* was one of the daring Letter of Marque privately armed ships, which formed another link between Salem shipping and the United States Navy. In both the American Revolution and the War of 1812, the regularly commissioned ships in the United States Navy were of such small force that, outside of service in our Navy, American private enterprise fitted out ships which became efficient auxiliaries of the United States Navy. For the first time privateering was conducted in a way that made it a determining factor in naval warfare, and in both wars the resultant unexpected destruction of British commerce did much to win advantageous peace.

Salem's share in the exploits of the American privateers was what might have been expected of men who had learned to fight upon the seas to protect their commerce. Among the pictures in this book is a very fine one of the Salem private-armed ship *America*, "the largest, the fastest, the most fortunate and the most famous of all the privateers which at any time sailed out of Salem harbor." It is an illustration of the conditions in the commerce of the times, which gave our American seamen their resourcefulness in naval warfare, to read that this Salem ship was launched in 1804 "with port-holes in her sides, and never put to sea without a heavy armament."

Consequently, it was not surprising that it was second nature for the *America* to become a successful privateer. Her "best speed was thirteen knots. She often maintained this rate for hours, and she often averaged more than ten knots for twelve consecutive hours. She was frequently pursued by Spanish and by British cruisers, and she left them with ease." This extraordinary ship was only 108 feet in length, 11.15 feet in draft, and of 331 tons. Yet her total of prizes sent into port, out of forty-seven taken, was "twenty-seven in all of a value of $1,100,000" —a wonderful record, when the scale of values at the time is considered.

Salem Vessels and Their Voyages is a detailed history of the adventurous voyages of Salem ships engaged in the pepper trade with Sumatra. This book is also illustrated with many ship pictures from Salem collections, and there are also many reproductions of portraits of old-time merchants and masters. It is a remarkable gathering of fine types of Americans, and a study of their faces gives the reasons for their successes. And the records of their voyages are proofs that real men were needed to carry on this trade with the Malays.

Constant vigilance was necessary to keep their ships from capture, as the Malays preferred piracy to trade. There were many attacks, and several ships were overpowered and taken. Of these the *Putnam* was abandoned to the Malays only after a hard fight, in which the ship's carpenter did great execution with "a stout stick three feet long, on the end of which the cook had fastened a coffee mill." Probably this was a unique weapon for a seafight, but its construction certainly has merit.

In 1831 the Salem ship *Friendship* was rushed by the Malays, who were allowed to come on board in too great numbers by the first officer in the absence of the captain. Although she was recaptured by the help of other ships, this successful attack, and the large amount of plunder, had such an effect upon the natives in arousing their cupidity that it was necessary to chastise them. Commodore John Downes in U. S. S. *Potomac* did this so thoroughly that Captain Endicott of the *Friendship* afterwards stated, "When I visited the coast again, some five months after this event, I found the deportment of the natives materially changed. There was no longer exhibited arrogance or proud defiance."

The following should also be quoted: "There is preserved in the fireproof addition of the Essex Institute, among its other valuable collections, a broadside which is of interest in connection with the punishment of the Malays by Commodore Downes, as it relates the incidents of that battle. At the top is a picture of a ship under topsails, and beneath is printed the following: 'Battle of Qualah Battoo.' It will be remembered that the ship *Friendship* of Salem, while at Qualah Battoo on the island of Sumatra in the Indian Ocean, was taken by the natives and all hands (five) murdered. When the intelligence was received by the American Government, the U. S. frigate *Potomac*, Captain John Downes, was immediately ordered to that place to chastise them, which was successfully accomplished on the night of the seventh of February, 1832, convincing them that the Stars and Stripes of Uncle Sam are not to be trampled upon, nor the lives of American tars sacrificed with impunity."

A HALF CENTURY OF NAVAL SERVICE, by Rear Admiral Seaton Schroeder, U. S. N. (Retired). D. Appleton and Company, New York.

A Review by Rear Admiral Philip Andrews, U. S. Navy.

Admiral Schroeder's reminiscences are bright and interesting and are a record of naval and scientific services of exceptional variety. There are many incidents of historical interest and value. If more officers of similar length of service could be persuaded to write their experiences, the value of the navy's disinterested service to the nation would be better understood by the people. The book is simply written with a quaint style which is very pleasing; and altogether is full of interest in its record of the development and trial of new ships and new weapons during the development of the new navy. A striking feature of the book is its kindliness in its reference to individuals and to policies, good and bad, during this development.

The accounts of the Korean expedition; the *Virginius* affair; the shipping of the Egyptian obelisk from Alexandria, Egypt, to New York; and the cruise of the sixteen battleships around the world, are all of great interest and historical value.

The final reflections on service matters are fair and present views well worth consideration and discussion. The opinions on the present method

of selection of officers for higher rank are reasonable and offer a possible modification for the future.

Altogether the book presents a record of unselfish service and accomplishment, in which all naval officers may take a just pride; and from which the public may learn how much of himself a naval officer gives to the nation, in valuable service in scientific and diplomatic, as well as in the naval field.

Admiral Schroeder commends to all officers the motto which he has tried to follow: "Whatever you do, do with all your might"—truly good advice.